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A National Newspaper for Every Branch of the Industry

First Copy

Automotive Daily News

PUBLIC LIBRARY DEC 22 1932 DETROIT

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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Britton Attacks Pinchot Move to Influence Truck Legislation in Other States

Pennsylvania Governor Suggested Laws More Stringent Than Those Proposed By Engineers

Washington, Dec. 20.—What appears to be an attempt to influence motor transportation legislation in the various states has been initiated by Gifford Pinchot, governor of Pennsylvania. In a letter to forty-seven state governors he recommends the fixing of the maximum gross weight limits for four-wheel and six-wheel trucks at 20,000 pounds and 28,000 pounds, respectively. These limitations are considerably lower than those recently suggested by the American Association of State Highway Officials.

Gov. Pinchot's effort to win support for his opposition to the findings of the committee of engineers has brought from Roy F. Britton, director of the National Highway Users Conference, the suggestion that the state governments give serious consideration to the conclusions of the highway experts.

Immediately after Gov. Pinchot's letter was distributed, Mr. Britton sent to certain men in the various states, who are interested in the safeguarding of motor transportation, a letter indicating to them the desirability of directing the attention of those entrusted with legislation to the conclusions of the highway engineers.

Mr. Britton reminded them that the standards of weights and measures agreed upon by the committee of engineers was the result of ten years of intensive study. These standards have not been formally endorsed by the National Highway

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STEEL OPERATIONS OFF 3% IN WEEK IN YOUNGSTOWN AREA

Youngstown, O., Dec. 20.—Steel plant operations in the Youngstown area this week declined to 12 per cent of capacity from 15 per cent. last week, although automobile steel buying is holding up late into December better than anticipated by sheet and strip manufacturers. Operations in this section in the corresponding week of December, 1931, were estimated at 28 per cent.

Ingot production for leading independent companies in the district is holding at recent levels, the downturn in production being caused by suspension of operations at Carnegie Steel Company's plant at Farrell, Pa. Republic Steel Corporation, which ships considerable tonnage to automotive makers from its various Ohio plants, increased its active openhearths this week by one and is expected to advance sheet production before the week ends. The company's Warren plant is reported by valley trade authorities to be the most active independent openhearth plant in the Youngstown district.

Carnegie Steel Company is operating its Mahoning Valley plants, which manufacture steel for automobile shapes and other uses, on a 25 per cent. basis, but has stopped production at its Farrell works, where output goes to tin plate bar and sheet bar. Six of thirty openhearth furnaces are melting for Carnegie in the district.

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25% GAIN IN OCTOBER OVER PREVIOUS MONTH IN CANADIAN OUTPUT

Ottawa, Dec. 20.—Production of motor vehicles in Canada during October amounted to 2,923 units, gain of 25 per cent. over September, and more than double the 1,440-car production for October, 1931.

Truck ouput declined from preceding month, but gains in passenger cars more than offset this. Only 691 cars of October output were made for sale in Canada, balance being for export.

CHRYSLER REDUCES SIX CYLINDER PRICE

Detroit, Dec. 20.—Prices on the new Chrysler six cylinder line range from $795 to $1,055, and show reductions of $50 to $70 on various body types compared with the 1932 series which ranged from $865 to $1,125.

N. Y. CITY 1933 CAR REGISTRATIONS LAG

New York, Dec. 20.—Automobile owners of this city are lagging in the registration of their cars for 1933 and thousands will be seriously inconvenienced if they do not act promptly, officials of the Bureau of Motor Vehicles pointed out yesterday.

At the end of business Saturday only 82,993 motorists in the five boroughs had obtained new plates, a drop of 13,769 from the figure at the same time last year. However, the opening tomorrow of ten additional issuing offices is expected to bring a large increase. The regular personnel of the bureau has been augmented by about 125 workers provided by the Unemployment Relief Committee.

As the licensing officers will not be open next Sunday and Monday, only ten days remain in which to get new plates, which must be put on cars operated on and after January 1.

DODGE SALES UP IN WEEK ENDED DEC. 10

Detroit, Dec. 20.—Retail deliveries of Dodge passenger cars for the week ended December 10 rose 14.9 per cent. over the record of the preceding week.

This marks the fifth week of continuous business increase and the third continuous week to show greater sales volume than corresponding periods of 1931 and 1930.

Preliminary Reports on 1933 Cars Indicate Many Innovations

NO A. D. N. ISSUE TUESDAY, DEC. 27

Owing to the legal holiday falling on Monday, December 26, 1932, Automotive Daily News will not publish on that day and there will be no paper for Tuesday, December 27. The same condition will apply to the issue of Tuesday, January 3, 1933.

NEW DE SOTO SIX TO OFFER RADICAL DESIGN CHANGES

Detroit, Dec. 20.—Preliminary announcement of De Soto's 1933 line shows many interesting developments in chassis and body design.

The power plant of the new line is a six-cylinder engine with a bore and stroke of 3¼ by 4⅜ and a piston displacement of 217.77. The engine develops 79 horse power at 3,400 revolutions per minute. It has a Silver Dome high compression cylinder head and downdraft compression. Automatic starting is also featured.

Automatic heat and clutch control are also employed. Free wheeling and an all-silent transmission are emphasized features of the new chassis.

Complete description and pictures of this new De Soto line will appear in a forthcoming issue of Automotive Daily News.

CADILLAC-LA SALLE 1933 OFFERINGS TO FEATURE LUXURY

Detroit, Dec. 20.—Cadillac is shortly announcing its new offerings for 1933, which will include the La Salle V-8, Cadillac V-8, V-12 and V-16, embodying many interesting changes in chassis and numerous refinements in body design.

The new Fisher controlled ventilation system will be used on all models. Streamlining has received considerable attention.

In presenting these new models, Cadillac is reaching new heights in giving expression to luxurious transportation. Complete details of these new cars will appear in a forthcoming issue of Automotive Daily News.

MICHIGAN ALIEN LAW IS NULLIFIED

Detroit, Dec. 20.—Three Federal judges signed a permanent injunction yesterday against the enforcement of the Michigan alien registration law, passed by the 1931 Legislature and signed by Gov. Brucker. The act was declared unconstitutional.

The decree, signed by Judges Charles C. Simmons, Edward J. Moinet and Ernest A. O'Brien, was prepared by Patrick H. O'Brien, attorney general-elect and one of the

(Continued on Page 6)

Activity Now at Peak, With Employment Highest This Year; Output Should Top December, 1931

Detroit, Dec. 20.—While most industry is now in the midst of its usual year-end slump, this city is humming with activity. Practically every one of the great automotive plants is now driving full speed ahead. The pay roll in this territory must be at about the highest point of 1932.

Every vehicle manufacturing company, which has not already announced, is preparing to do so. Advanced stories of the new lines to be presented between now and the beginning of the show period indicate interesting developments both in the mechanical engineering features of the new cars and also in the field of body design.

With almost two-thirds of the working month now a matter of history, there is no reason to change previous estimates indicating that December, 1932, will exceed the production total of the same month last year, the first time that such a condition has existed since October, 1929.

BIG CLAIMS MADE FOR CONTINENTAL 4 MODELS FOR 1933

Detroit, Dec. 20.—Continental's four-cylinder car to be marketed direct to the consumer through Continental's own dealer organization and newly established Continental terminals, will have an extremely low list price, perhaps the lowest in the industry.

The car is strikingly good-looking and should show around thirty miles to the gallon.

The power plant's suspension is by a modified Borg-Warner system using two coil springs in front and rubber mounting at the transmission.

The front springing is by one transverse member, but in the rear double quarter-elliptic cantilevers are used on each side.

Complete details and illustrations will appear shortly in Automotive Daily News.

GRAHAM FOR 1933 PLANS 2 STANDARD, ONE CUSTOM LINE

Detroit, Dec. 20.—Graham-Paige is preparing to announce two standard and one custom line of cars for 1933.

The standard lines will include a six and an eight cylinder. The six is powered with an engine developing eighty-five horse power at 3,400 r. p. m. The eight, with a piston displacement of 245.4 cubic inches, develops 95 horse power at 3,400 r. p. m.

Many mechanical improvements and body refinements will find a place in the 1933 lines. Complete details will appear in a forthcoming issue of Automotive Daily News.

SINGIN' SAM PICKS A PONTIAC EIGHT

New York, Dec. 20.—Singin' Sam, the radio star, who acted as judge of the automobile world's new models, announced this week that he had selected the new 1933 Pontiac Straight Eight as the car to be awarded as prizes on each of his thrice-weekly radio contests.

He has been conducting a thrice-weekly contest over the Columbia network in the interests of his sponsors, Barbasol, with an automobile awarded during each of his broadcasts. The make of car to be awarded was withheld until the air favorite could examine the new cars. His selection was not confined to the lowest price class.

His final decision also affects the

(Continued on Page 5)

IMPROVED PACKARDS, TWO EIGHTS AND A TWELVE, DUE SOON

Detroit, Dec. 20.—Packard in 1933 will have two eights and a twelve-cylinder chassis with notable improvements in bodies and chassis.

There will be a brand-new ventilating system. The big eight has no vibratory point within the driving range of the engine. The power has been increased considerably, the torque characteristics bettered—all through a change in intake manifolding. The r. p. m. are lower.

A new braking system and booster with dash control, plus changes in the steering system and clutch, produces one of the most easily managed cars on the road. A simple change in clutch plate design results in extremely smooth action.

Full details, with illustrations, will appear shortly in Automotive Daily News.

STUDEBAKER WILL ANNOUNCE 4 NEW LINES FOR 1933

South Bend, Ind., Dec. 20.—Studebaker will shortly announce its new lines for 1933 embodying a new Studebaker Six with an engine developing 85 horsepower and showing a base price of $865 for the line. There will be a Commander Eight in the $1,000 class with a 100 horsepower engine. Two President Eights will be announced, one with a wheelbase of 135 inches and an engine developing 132 horsepower and a second President with a wheelbase of 125 inches and a 110 horsepower engine.

Among the interesting features disclosed on these new cars will be Bendix power brakes, automatic heat control and choke and lubrication points reduced to four demanding attention at 2,500 miles, the rest needing it at 5,000 miles.

There will be many interesting body improvements and refinements.

Opposes Pinchot Move To Influence Truck Laws

(Continued from Page 1)

Users Conference, but Mr. Britton indicated that while they might not be entirely satisfactory, they certainly should be given more consideration than the recommendations of the head of any one state, where the conditions may be different from those generally prevailing.

Gov. Pinchot's communication was predicated on conclusions at variance with a number of the findings and recommendations of the special committee of engineers, of which Thomas H. MacDanald, chief of the United States Bureau of Public Roads, was chairman, and which included Samuel Eckels, the highway engineer of his own state. He included among the reasons for his recommendation the protection of the roads, the safety and convenience of travelers, and competion which motor vehicles afford the railroads.

It may be assumed that Gov. Pinchot's letter will be welcomed by the anti-highway propagandists in every state and will be used in an attempt to commit as many governors as possible to anti-highway legislation.

CHICAGO RAWHIDE ASKS INJUNCTION, ACCOUNTING

Detroit, Dec. 20.—The Chicago Rawhide Manufacturing Company has started a patent infringement suit in the Federal Court here against the Victor Gasket and Manufacturing Company, charging infringement of several oil fuel patents. The Chicago Rawhide people ask an injunction and an accounting.

STEEL OPERATIONS OFF 3% IN WEEK IN YOUNGSTOWN AREA

(Continued from Page 1)

Valley schedules show that Youngstown Sheet and Tube Company is operating its Campbell plant at recent levels and is averaging 12 per cent. for its district plants. Two sheet plants are tentatively scheduled to operate for sheet and tube some time during the week. The company's Bessemer plant is idle and one of eight blast furnaces in its valley plants is melting.

Several district plants making welding machinery for the automobile industry are reported at capacity. One such plant at Warren, O., has orders sufficient to maintain capacity operations for two months.

The Packard Electric Company's plant at Warren, O., is operating at 75 per cent. in manufacture of automobile cables. The plant is busier than for several months.

Remember These Dates

NEW YORK SHOW ISSUES
January 7-9-10-11-12-13

Six Issues at Each Show
Total distribution for each show week.... 165,000
ALL TRADE

		Total for week
3,000	Daily at hotels, show booths, dealer meetings, conventions, etc.	18,000
4,000	Daily to truck fleet owners. Machol list rotated during the week	24,000
5,000	Additional vehicle dealers not among net paid subscribers	30,000
4,000	Selected service stations	24,000
500	Jobbers of accessories, parts, shop equipment	3,000
1,000	Engineers, production men, etc., not regular subscribers	6,000
10,000	Regular daily distribution, including net paid A. B. C.	60,000
	Total for each show week	165,000
	Average daily distribution	27,500

CHICAGO SHOW ISSUES
January 28-30-31—February 1-2-3

WHEN your advertising appears in the show issues of Automotive Daily News it will be carried to the trade in the quickest time and, because of the visibility of all advertising copy, your ads will be seen. Apart from the number of copies to be distributed and the fact that the rates are no higher, there are other reasons why you should use these show issues. Here are some of them: High reader interest. Visibility of all advertising copy. Any frequency desired. Multiple readership (average over six readers per copy). Large size page. Economy. Less than page space can be seen, hence more insertions for same expenditure.

Automotive Daily News

Personally Delivered Copies Free

If you want Automotive Daily News Show Issues delivered to you each day while you are in New York, register now by mailing the coupon below. No charge.

H. A. Tarantous,
Automotive Daily News,
350 Hudson Street,
New York City.

While I am in New York please deliver a copy of each New York Show Issue to me at .....

.....

Name and title.....

Company .....

Permanent business address.....

FINANCIAL NEWS

MOTO-METER

Toledo, O., Dec. 20.—Motor-Meter Gauge & Equipment and subsidiaries report for nine months ended September 30 net loss of $308,165, after depreciation, interest, etc., comparing with net loss of $276,700 in the first nine months of 1931. For the quarter to that date net loss was $91,432, after above charges, comparing with net loss of $108,280 in the preceding quarter and net loss of $86,386 in the September quarter of the previous year.

MOORE DROP FORGING

Springfield, Mass., Dec. 20.—Moore Drop Forging reports ofr the year to October 31 net loss of $364,124, after depreciation, taxes, etc., comparing with net loss of $198,432 in the preceding fiscal year.

FAILURES

New York, Dec. 20.—Failures increased slightly last week. The increase was smaller than the one recorded at this time a year ago. The total number in the United States, according to R. G. Dun & Co., was 590, compared with 588 and 467, respectively, in the two preceding weeks and 667 for the corresponding week of last year. December insolvencies a year ago were the heaviest for any month in that year since January.

INVESTIGATION ON PASSAGE OF VEHICLE LAW SOUGHT

Boston, Mass., Dec. 20.—A bill filed with the clerk of the Massachusetts House of Representatives by Representative Harold E. Cole of Taunton would provide for the creation of a special commission to investigate the circumstances under which the 1932 Legislature passed the law in the nature of a financial responsibility act for property damage caused by motor vehicle operators.

Mr. Cole is concerned about the provision which eliminates persons carrying property damage insurance from the penalties of the act. The bill would have the commission "determine the person or persons who suggested the inclusion of the exemption provision and to investigate the connections and relations, business or otherwise, of the persons in question with insurance companies."

TAXI REGULATION ASKED BY BOSTON ELEVATED

Boston, Mass., Dec. 20.—A recommendation that operators of taxicabs be required to obtain certificates of public convenience and necessity from the Department of Public Utilities is made by the board of public trustees of the Boston Elevated Railway.

The trusutees stated in a report filed with the secretary of the commonwealth that the annual loss to the railway from "unfair taxicab competition" is more than $100,000. It was proposed that the Department of Public Utilities be given power over taxicabs similar to that exercised over buses.

The trustees also recommended that the railway be authorized to sell electricity to railroads, street railways, electric companies and other public utilities for light, heat and power as a means of helping to offset the loss in operating revenues.

PHILA. SERVICE MEN AND BOOSTERS FROLIC

Philadelphia, Dec. 20.—The Automotive Service Association of Philadelphia and the Automotive Boosters Club No. 18 pulled off their annual Christmas frolic last night, at Philadelphia Automobile Trade Association headquarters, Broad and Olive Streets, with a large attendance. Cabaret numbers were given during and after the dinner, which began at 7.30. The highly entertaining program was under the supervision of a committee consisting of William E. (Bill) Nock, chairman; Joe Suess and Gordon Davis, with the following directors: Joe Dawson, Lex Kennerly, George Matlack, Jack Nidecker, Earl Mylecraine, Fred Nicholson, Jack Palmer and Ralph Woodhull.

SPARKS *from* DETROIT

Berne Nadall
* * *
The Voice of Crooker
* * *
Banquets
* * *
Buying Problems
* * *
Something New
* * *

Chris Sinsabaugh—Detroit Editor

A NOTE FROM WIN ZUCKER, general manager of Stewart-Warner, informs me of the death of Berne Nadall. Which carries me back to the days of glory that was Chicago's, the time we promoted the most sensational series of automobile contests that did so much to establish confidence in the reliability and speed of the motor cars of that time—endurance tests of long duration, unusual then but now just part of a day's work; hill climbs at Algonquin, and even road races, all of national caliber.

Along with David Beecroft and F. E. Edwards, Nadall was on the technical committee of the Chicago Automobile Club that staged the Cobe Cup road races at Crown Point, Ind., in 1909, the Middle West's first attempt at speed contests on the public highways, and which brought fame to Louis Chevrolet. Looking back over the years, I believe there has been no technical committee since that has equaled this trio at this sort of contest work. It was largely through their skill at Crown Point and in other events that Chicago set up a reputation for automobile contest promotion that made it stand out above any other city in the country. It's my personal nomination for the all-time technical committee.

* * *

IF YOU WERE TUNED IN Saturday night on the Columbia hook-up (we got it in Detroit over CKOK), you would have heard a new voice on the air. It was the occasion of the "mike" debut of Bob Crooker, advertising manager of Chevrolet. He pinch-hit for the big boss, Harry Klingler, general sales manager, too hoarse from a cold to talk himself. So the words of Klingler as to the debut of the new line came out of the mouth of Crooker.

* * *

MY INVITATION for the annual banquet of the National Automobile Chamber of Commerce Tuesday night of show week has come to hand. It's been promptly R. S. V. P.'ed, because I haven't missed a one of them since 1915; quite a record for regularity of attendance.

There is other evidence, too, that it's going to be heavy going in the matter of lunches and banquets for this commentator during show week. Another booking is for the Chrysler dealers' dinner on Monday night at the Armory.

* * *

ADDING TO MY FUND of knowledge about aluminum and leather, my friend, the purchasing agent, tells me of another phase of the industry. He declares that when he is in the market for certain steels the steel seller always asks, "What are you going to do with it?"

The reason is that the steel company, in order to protect itself, wants to know the use, so that its metallurgists can furnish the right kind of steel. For instance, if a stamping is to be made, they want to furnish a steel with the proper ductility, so it will take the required form without "tearing" or cracking. It must have density, too.

The P. A. says when making a lamp today or a radiator shell the metal must have ductility and density, because if it is close-grained material it will take a high polish easily and save thousands of hours and dollars of labor. He tells me also that motor hoods, which a few years ago were made of the cheapest material, now call for almost mirror steel—steel that takes a high polish easily and quickly, which eliminates "rubbing out" almost entirely. Specifying mirror steel has saved the car maker many dollars, he says, and enabled them to reduce production cost to a remarkable degree.

* * *

I always get something from the P. A. It's always something that we have taken for granted, but really never know until the P. A. tells the inside story.

* * *

PASSING THROUGH a small town near Detroit an executive friend of mine observed an old Ford. It wasn't its oppearance that attracted attention. It was a new and decidedly original winter accessory which the old car had. Over the radiator was an old comforter. It covered half of the hood. To hold the comforter in place, the owner had wedged two life-size building bricks, one between each lamp and the hood on either side.

The mechanical advantages seemed to be weight and quick adjustment. At any rate, in spite of the fact a high wind was blowing, the contrivance worked, and that motor could give Jack Frost the ha-ha.

Retail Salesmen—This Is Your Page

This department is devoted to the interests of the retail sales division of the industry. Salesmen, this is your department. Automotive Daily News wants you to get something from this department that will help you in your work on the firing line. It wants you to pass on your own experiences, success, failures to help your brother salesmen. Send in your story in the form of a letter, or even a postal card, and let us get it ready for publication. Your achievement or your mistake may help another salesman to make sales or avoid errors that cost you commissions.

Dealers read this page. Give us the benefit of your reactions on these problems that affect the work of your salesmen, the men on the firing line, the men who bring home the bacon or don't.

1933 WILL REWARD SALESMEN WORTHY OF THE NAME

Nineteen thirty-three will be the nearest approach to a Golden Year the automobile business has had since 1928—for those motor car salesmen who are actually worthy of the name.

This is the opinion of Frank B. Willis, general sales manager of the Bragg-Kliesrath Corporation, Bendix subsidiary manufacturing the bulk of the industry's automatic clutch control and vacuum power brake devices. Mr. Willis expressed his views upon the coming motor market to a group of motor men assembled in New York yesterday to attend the automobile show.

"This year a successful car salesman will work harder, longer and more intelligently than he ever has before," said Mr. Willis. "It doesn't take any excess of gray matter to sell an automobile by making an overwhelming allowance on the old bus. Real salesmanship is presenting your car's advantages so impressively that your prospect wants that car. By so doing, you will accomplish more good than by merely making a good sale—you will sell yourself; add another customer to your own clientele.

"The wise salesman will put his car on the scales of merit, will weigh its every point against competitive cars. And he will drive home his advantages in a most aggressive manner. For instance, let us take a car that is equipped with the two outstanding marks of up-to-dateness—Bendix new automatic clutch and Bendix B-K vacuum power brakes.

"If the car you sell has these units, explain them to prospects; emphasize their vital advantages; prove that it's a better automobile because of them—modern, more comfortable, a lot safer. Explain that the Bendix automatic clutch, with the new cushion control, positively eliminates the evils of incorrect clutch operation, evils inherent in physical operation. Engagement is smooth, mechanically perfect, always the same with this new unit. There can never be any jerking or 'grabbing.' Life of clutch and clutch bearings is immeasurably prolonged.

"This year vacuum power brakes are necessary—the only safe and sane answer to lighter, faster cars, mounting speeds, better roads. Car 'control' is the imperative need in today's driving. Only power brakes will do the job and vacuum power is the simplest, most reliable, most economical form of power for motor car brakes.

"These are simply examples of features salesmen can use to drive home the superiorities of their particular car. Every other outstanding feature of the car should be sold, and sold hard. It is impossible to lay down rules for the masses—one thing will appeal to some, another to others. The only safe, sure way to sales is to drive home every feature. The salesman who follows this plan of operation will sell automobiles in 1933—and those who don't won't. Cars will be sold in quantity—by salesmen worthy of the name."

TIPS FOR SALESMEN

H. H. Skerrett, Jr., manager of the Hartford, Conn., branch of the Packard Motor Car Company of New York, 150 Washington St., Hartford, offers the following suggestion to automobile salesmen:

"Make up a list of persons in each locality connected in any way with the motor car industry, including manufacturers of parts, accessories, metals, textiles, lacquers and so on, clear down the line.

"Approach these men with the suggestion that they should be willing to aid an industry in whose welfare they are interested by buying a car. The method of attack is clear. The salesman may cite the benefits which accrue from every sale and point out how each sale will directly or indirectly help the business of the person approached.

"Investigation of this field will many times reveal a surprising number of prospects. Every city has a number of industries connected in some manner with the automotive trade."

Used Car Selling Prices

Automotive Daily News in this department offers for the benefit of its dealer and salesmen readers a compilation of prices at which used cars have within the past few days been offered for sale by reputable dealers in various cities. These prices will vary on condition and from other causes. They are not presented as being the exact prices at which these models should be sold, but simply as the prices at which they have been offered for sale by dealers in the various cities. Other cities will appear in subsequent issues of this paper.

Kansas City, Mo.

Make of Car	1932	1931	1930	1929
Auburn	....	[2]495	....	....
Buick, Light	....	585	....	....
Buick, Big	....	[2]850	....	285- 325
Cadillac	....	1575	....	[2]650
Chevrolet	[1]385	[2]245-[1]375	[2]185-[1]235	[1]165-[2]175
Chrysler 6	....	....	....	195-[2]245
Chrysler 8	....	750	....	....
De Soto 6	425	....	....	215
Dodge 6	....	495	[2]325	265
Dodge 8	....	....	395	....
Ford 4	[1]395	[2]215-[2]345	[2]175- 240	[1]115-[2]145
Ford 8	480	....	....	....
Graham 6	....	....	....	[2]175
Graham 8	....	....	350	[2]250
Hudson	....	[2]595	....	....
Hupmobile 6	....	595	....	....
Hupmobile 8	....	....	....	225
La Salle	....	....	[4]775	....
Nash 6	....	....	[2]300	[2]185-[2]285
Oldsmobile	....	495	....	[2]185-[2]225
Packard	....	....	985-1450	675- 685
Pierce	....	....	....	675
Plymouth	[2]345- 475	295	210	[2]199
Pontiac 6	....	[1]345-[2]445	[2]295- 345	195
Pontiac 8	945	....	....	....
Studebaker 6	....	[2]495	....	....
Studebaker, Dlc.	....	....	325	....
Stutz	....	....	775	....
Willys-Knight	....	[1]275-[2]495	....	....
Willys-Overland	445	265	295	....

Legend: [1]coach; [2]coupe; [3]roadster; [4]convertible; [5]victoria; [6]limousine; [7]brougham; [8]touring or phaeton. When no symbol is used the car is a sedan.

BASES SUCCESS ON ALLIED SERVICE, STRONG FOLLOW-UP

By S. NELSON

George Held, head of the Clifton Tire Company, Clifton, N. J., believes that allied services with a strong follow-up system is the basis for dealer success.

"The tire dealer who expects to reduce his overhead and increase his unit sale with allied services must go one step further than the mere addition of these departments. He must do something to make his allied service customers repeat," says Mr. Held.

"The man who comes in once for brake adjustments or lubrication is not a profitable customer unless he continues to come back. This may be questioned by some dealers, but when one considers the advertising and selling expense and the general overhead chargeable against each new customer sale, it will be found that the net profit on new customer business is not what it seems."

The Clifton Tire Company sold tires and did repairing from a corner store. The only allied service rendered was gas from a curb pump. In May, 1931, George Held and Abe Rojofsky, proprietors, decided to go in for super service and opened one of the largest super service stations in Northern New Jersey, with 12,000 square feet of space on the service court.

The first day the station opened the meters registered 4,289 gallons of gas and the business now averages more than 35,000 gallons of gas monthly and better than twenty oil changes and lubrication jobs daily.

Tires are not forgotten, sales averaging about 100 monthly. Tire chains, batteries, non-freezing solutions, fan belts, spark plugs, automobile polish, horns and many other automobile accessories have been added since the company opened up this station and they all are helping to maintain profits during a period when others are crying "slump!"

"The satisfactory profits on allied services are made on repeaters," Mr. Held continues. "Transients are the mainstays of few dealers in the automotive field. The old customer is the profit-builder and a direct-mail follow-up system of some kind should be utilized to turn one-timers into oldtimers.

"Direct-mail, if consistently used, is the best medium for making customers repeat and the motorists appreciate being reminded that their cars were serviced at such and such a time, and that it is about time to bring them back for renewal servicing. Then, too, a follow-up system is not expensive. Excellent mailing matter may be procured from manufacturers at reasonable cost.

"Whenever a customer comes here for a lubricating or oiling job we make out an order showing the motorist's name, address, license number, the service required, date of work and speedometer readings. When the job is completed we place a small celluloid sign on the dash. This sign shows the mileage when we changed the oil, when we lubricated, when we greased the transmission and differential, and the date when we checked the battery. This keeps the motorist reminded when it is time to repeat.

"Each job is carded and filed alphabetically, the information on the job ticket being transferred to the filing card. Thirty days after each service job we send a follow-up, advising the motorists that it is time to repeat.

"We find that 70 per cent. of our customers reply to this follow-up by bringing their cars around for renewal servicings. We check the comebacks against our filing cards, then go after the remaining customers in ten days with a red card signifying danger. Twenty per cent. more motorists come back after the second follow-up. We find that only

(Continued on Page 6)

Dealer Activities

NEWARK, N. J.

S. H. Grossman, Inc., Dodge dealer of 309 Central Ave., Newark, announces the appointment of Robert D. Chaplin as sales manager. Mr. Chaplin is credited with having sold the first Dodge automobile in New Jersey. He started in 1914 as a salesman with the Bonnell Motor Company, which was the original Dodge dealer. In 1927, when the Hillis Motor Car Company took over the local distributorship for Dodge, Chaplin went with this new company as vice-president and general manager. In 1931 he again joined Horace Bonnell as vice-president and sales manager of the Bonnell-Mason Company.

* * *

Alfred De Cozen of the De Cozen Motor Company, Chrysler and Plymouth distributor for the state of New Jersey, and Mark Manship, wholesale manager, have returned from the Chrysler factory in Detroit.

* * *

Samuel Wilder of J. W. Wilder & Co., automotive distributor, sailed yesterday on the Reliance for a cruise to South America, Central America and the West Indies. He will return January 5.

* * *

William J. McKeown, representing the Continental Automobile Company of Detroit, has arrived in Newark. He has been appointed district manager in charge of the state of New Jersey. At present he is residing at the Robert Treat Hotel.

* * *

Simon H. Gross, for twelve years an automobile dealer in Newark, Irvington and Union City, has organized the Newark Auto Corporation for the merchandising of Dodge and Plymouth cars. The Newark Auto Corporation, which occupies the building at 440 South Orange Ave., will sell and service the entire Dodge line.

* * *

SPRINGFIELD, MASS.

Fred A. Flick, operating under the name of Franklin Motor Company, 687 State St., this city, has been named distributor for Franklin for this territory, which includes Hampden, Hampshire and Franklin counties in Massachusetts and some territory in Vermont. Associated with him is M. Elmer Smith, who has been with the Franklin organization in this vicinity for the past fourteen years, also Fernand Legein. Edward P. Foley is in charge of service.

* * *

Arthur Johnson, who has been with A. V. Reopell since 1928 as salesman, has joined the sales staff of Balise Motor Sales, Chevrolet dealer, at 629 Main St.

* * *

CALIFORNIA

W. P. Minor and G. C. Williams have purchased the Grafe Chevrolet Motor Sales, 1789 Montgomery St., Oroville, from W. J. Grafe.

* * *

Thomas Hunt has purchased the San Mateo Ford dealerships at 50 North B St., San Mateo, from Fred E. Beer.

* * *

O. W. Hunsaker has sold his automobile establishment, located at Broadway and Inyo Sts., Fresno, to C. A. Thompson and C. C. Hansen. Mr. Hunsaker has moved to Santa Rosa, Cal., and is opening an auto agency there.

* * *

Charles Mackrell has opened a used car mart at 1417 K St., Sacramento.

* * *

Eymann-Suderman Motor Co., 1533 7th St., Sanger, handling several lines of automobiles and tractors, will now be continued by H. L. Suderman under the same name. The withdrawing partners are E. A. Eymann and J. J. Eymann.

* * *

PATERSON, N. J.

Harry M. Smith, Chevrolet dealer, reports that despite the worst snowstorm in six years, more than 2,700 persons visited the showrooms Saturday and Sunday and twenty-nine orders were taken in the two days.

* * *

BIRMINGHAM, ALA.

The territory of Alabama and the west coast of Florida has been added to the area of the Nash-Mississippi Valley Motor Company, distributors, of New Orleans. The new territory makes the company one of the largest distributors in the South, and sub-dealers are to be appointed in Gadsden, Birmingham, Montgomery, Tuscaloosa, Selma, Anniston and Mobile, according to F. E. Truett.

* * *

NASHVILLE, TENN.

The Stumb Motor Company, local Buick-Pontiac dealership, announces the appointment of R. B. Deal, formerly connected with the Buick Motor Company factory at Flint, as service manager.

* * *

YOUNGSTOWN, O.

The H. F. Black Company, in addition to marketing the Ford line in both passenger and commercial cars, has taken on the dealership for the Lincoln.

* * *

ST. PAUL, MINN.

Buick cars are to be handled here by an entirely new organization, St. Paul Motors, Inc., in which the personnel numbers twenty-seven. Former quarters of the McDonald Chevrolet Company are to be utilized, and the former vice-president of that company is to be secretary-treasurer of the new company, Cyrus G. Peterson. J. Warren Snell is president and general manager. St. Paul Motors will continue the Chevrolet car service, in charge of H. S. Knispel.

* * *

KANSAS CITY, MO.

The Chrysler Kansas City Company and John A. Butler, Inc., celebrated the occupancy of its extensive new location on the west side of Baltimore Avenue, between 14th and 15th Streets, with a formal opening. The Chrysler Kansas City Corporation is one of four direct Chrysler wholesale distributing organizations in the United States.

* * *

MOBILE, ALA.

S. B. Quigley has taken over the Buick dealership here and will conduct it at St. Louis and Claiborne streets.

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

Published Every Day Except Sunday, Monday and Holidays, and Tuesday When a Holiday Falls on Monday

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WEDNESDAY, DECEMBER 21, 1932

ADVERTISING AND BUSINESS HEADQUARTERS

Harry A. Tarantous, Business Manager. 350 Hudson St., New York, N. Y.
B. B. Crighton, Assistant to Business Manager.
George M. Slocum, Manager, Detroit Bureau, 427 Fisher Building, Detroit, Mich.; phone Trinity 2-3500. Willard R. Cotton Western Manager, 333 North Michigan Ave., Chicago, Ill.; phone Andover 3460. Metz B. Hayes, New England Manager, Little Building, Boston, Mass. Blanchard, Nichols & Coleman, American National Bank Building, San Francisco, Cal.; Lincoln Building, Los Angeles, Cal.; 1037 Henry Building, Seattle, Wash.
Address ALL Advertising and business correspondence to 350 Hudson St., New York city.

EDITORIAL DEPARTMENT

350 Hudson St., New York, N. Y. Telephone CA nal 6-1000.
Alexander Johnston, Editor. William O. Callahan, News Editor.
Statistical Department (registrations and specifications), P. J. Roras, statistician. Engineering Department, A. Benson Carleton, technical editor. Merchandising Department, Charles S. Zack, editor. Art Department, John Banerfeld, director.
Detroit Bureau, Chris Sinsabaugh, editor, 427-8 Fisher Building, Detroit, Mich. Telephone Trinity 2-8500. Contributing editor, John C. Wetmore.

Delayed Realization

AUTOMOTIVE DAILY NEWS has commented more than once on the fact that people in general do not at once recognize either the coming or going of a depression. We have quoted the late Dwight Morrow, who when he was asked when the depression would end, replied: "About six weeks before any one realizes that it has ended."

The other day Richard Whitney, president of the New York Stock Exchange, remarked: "The public usually fails to recognize promptly either the advent or the passing of a boom or of a depression. Most observers early in 1930 were not yet convinced that the inflation of 1928-1929 was over, and in like fashion the exhaustion of liquidation and the gradual beginning of fundamental economic improvement have, it may be, not yet adequately impressed the public."

B. C. Forbes recently quoted Herbert N. Casson, the well-known British economic expert, to the following effect: "Good times invariably come after a depression about six months before most people know it. They come while most people are still talking depression. The new opportunities come before people are ready. Better times have begun. Stir yourself and use your opportunities."

As we stand on the threshold of the new year, there are many signs that suggest that the bottom of the depression was reached during the period roughly denominated as the "middle of the year." This means the period from June to about August.

For one thing, a line drawn from the bottom point of the freight car loadings curve at the first of July and carried out to the first of December this year shows a definite upward trend. This is the first time such a thing has happened since 1928. Of course, freight car loadings are not the final factor indicating permanent improvement. Plants might ship a greater volume of products to distributors than the public was ready to absorb. But this condition would not be likely to continue over a period of five months. Manufacturers might overestimate the market for a brief period, but the mistake would be quickly apparent and excess shipments would stop.

That there is a better feeling abroad cannot be doubted. Even conscientious pessimists acknowledge this, but they ascribe it to various causes, none of which is any real improvement in business conditions. As one of these honest pessimists expressed it: "There is a little better sentiment to be noted, but all that means is that the American people after three years of misery are getting used to it and learning how to smile in spite of depression. How can any one say that things have improved when more people are out of work this winter than last, and we know that the basic factor in recreating prosperity is increasing buying power?"

Obviously enough, a people which has endured three years of business depression has had time to learn how to grin and bear it. But even if this is true, isn't the resulting state of mind one of the fundamental factors that we need in our fight for revival? The man who has believed that he was ruined by depression and finds that he is still alive, still carrying on and can smile in the face of adversity, has the essential frame of mind to assist recovery.

There is money enough in this country; there are even wages and salaries great enough in volume to start revival any time that the great fear definitely lifts and permits those who still have jobs and still have incomes to spend their reduced resources in normal fashion. There are enough wage earners employed in this country to start a buying wave, with deferred payment purchases leading the way, if the individuals only had confidence enough to make the initial investment.

And wouldn't it be dandy if some employers set a fashion of displaying confidence by returning just a thin slice of what they have taken away from their workers in the way of wage reductions. Is it exactly fair to expect employees, dependent on the whims of employers, to display all the courage and confidence that the present situation so acutely demands?

In This Corner . . . .

Opinions, suggestions, complaints, criticisms, grievances or what have you. Open to every one to say anything, anyhow, any time. The communications printed in this department represent the ideas and opinions of our readers. They are not necessarily ours. If you have something to say on any phase of automotive activity, wholesale, retail or abusive, let us hear from you and we will tell the world.

Our Thanks to Mr. Habel

Automotive Daily News: Because of some interesting developments resulting from your having used the story covering the Habel Salesman's Compensation Chart which we recently put into operation, I feel you will be interested in knowing of the widespread appeal the story had, indicating the broad reader interest of your paper.

Two days after the story appeared we began to receive inquiries and it is interesting to note that although nearly two weeks have elapsed since it was published we are still in receipt of letters from dealers, many of them containing checks or money orders.

Singularly enough the early letters came from Canada. We have three inquiries and orders from Ottawa, two from Toronto and from scattered points in the Dominion. However the large number of inquiries from dealers in the United States indicates the wide distribution of your paper. They came from dealers of Chrysler, Essex, Dodge, Buick and many other makes of cars, including of course a great number of Chevrolet dealers, due possibly to the fact that the Barney Habel Auto Company of Pontiac, Mich., was pointed out as a Chevrolet dealer.

However you seem to cover the geography of the country in a remarkable manner because the inquiries came from Dallas, Tex.; Long Island City, N. Y.; Columbus, Dayton, Toledo, O.; Boston, Mass.; Omaha, Neb.; Washington, D. C.; Bangor, Me., and other points all over the country.

I also want to add that we have replied to every inquiry and we have included our Used Car Sales Compensation Chart recently compiled, but which was not part of the original story as written.

Thanking you for many past favors and assuring you of the sterling value of the Automotive Daily News, I am,

BARNEY HABEL, PROP.
Barney Habel Auto Company
Pontiac, Mich.

Lights! Lights! Lights!

Automotive Daily News: I have read with considerable interest your editorial in recent issue "The Mystery of Lights."

Up to the present time practically all of the lamps which have been devised for automobile use have bee of the parbolic reflector system, and I judge from the tone of the editorial which you published that you are not familiar with the lamp which is used so extensively in California on the highways called the Woodlite.

This lamp is not designed on any of the lines of present lamps but is intended to give a remarkable flood light over the whole road covering the sides of the road as well as the road in front of the car.

In these lamps the electric lamp bulbs are placed above the top of the front glass, and therefore it is impossible for this lamp to give any glaring effect on the incoming vehicles. This is a very radical departure from any lamp which has heretofore been placed on the market, and in view of the excellent illumination which this lamp gives, it occurred to me that you should have some information in regard to this matter.

I was so fortunate as to obtain a circular describing these lamps from the manufacturers in California, and I am turning it over to you on account of the great interest which you have taken in the question of autombile driving and illumination.

Sincerely trusting that the information which I am sending you may prove of interest, I am,

DAY BAKER,
Chairman legislative committee, Massachusetts Automobile Dealers and Garage Association, Boston, Mass.

PENN. TRUCK GROUP ELECTS 1933 OFFICERS

Philadelphia, Dec. 20.—The Philadelphia Chapter, Pennsylvania Motor Truck Association, Inc., at its annual meeting preceding the holiday "jamboree" in the Bijou Theater, elected the following officers and directors for 1933: President, J. P. Whinney, Whinney's Express; vice-president, J. G. Moxey, Sun Oil Company; treasurer, W. Ross Walton, Walton Tire Service; secretary, J. Wallace Fager, Miller North Broad Storage Company.

Chapter directors for a term of one year were chosen as follows: A. D. Aldrich, George B. Newton Coal Company; Roger F. O'Brien, Roger O'Brien, Inc.; Judson C. Welliver, Highway Users' Conference of Pennsylvania; W. K. Perkins, International Harvester Company of America, and Charles Rosenthal, Pyramid Motor Freight Corporation. Chapter representatives selected for the state board of directors are: William H. Brearly, Autocar Company; Buell G. Miller, Miller North Broad Storage Company; J. G. Moxey, Sun Oil Company; Harry E. Boysen, Philadelphia Brayage and Express Corporation, and James M. Naye. Mr. Naye and Harold S. Shertz, the association's attorney, alternately presided.

SMITH & GREGORY BRAKE CLINIC WILL HEAR T. D. PRATT

New York, Dec. 20.—T. D. Pratt, general manager of the Motor Truck Association, will deliver a talk on "1933 Legislative Problems of the Commercial Vehicle Operator," at the next meeting of the brake clinic to be held tomorrow at the Long Island City headquarters of Smith & Gregory of New York, Inc., at 37-11 Queens Boulevard.

After Mr. Pratt's talk, the meeting will be turned over to John F. Creamer, president of Wheels, Inc., who will introduce M. M. Cunningham, an engineer of the Bendix Company, who will present an illustrated lantern slide lecture on service and maintenance of Bendix brakes.

These brake clinics are held by Smith & Gregory on the first and third Wednesdays of each month at their Long Island City headquarters. Tickets of admission may be had by applying at the New York office of the company, at 426 West 55th St., or at the Long Island City headquarters.

NASHVILLE SHOW SET FOR WEEK JAN. 16-21

Nashville, Tenn., Dec. 20 (UTPS).—A call meeting of the Nashville Automobile Trades Association, held December 9, for the purpose of discussing this year's automobile show, resulted in the decision to hold the show the week of January 16-21, according to a statement of Timothy H. White, secretary, made today.

The show committee appointed to arrange details was James S. Frazer of the Imperial Motor Car Company, chairman; James H. Reed of the Jim Reed Chevrolet Company, Warren C. Brown of the Hippodrome Motor Company, Paul Stumb, Jr., of the Stumb Motor Company, and Allen Parkes of the Cadillac-Oldsmobile Company.

The regular annual election of officers will take place on the night of December 29, at which time drawings for show space will be held.

It has been the custom to hold the show each year at the Hippodrome, but it has not yet been decided whether this year's show will be held there or at some more centrally located place downtown.

Calendar of Coming Events

JANUARY

6—**New York, N. Y.** Automobile Merchants Association of New York, pre-show banquet, Hotel Commodore.
7-14—**New York, N. Y.** National Automobile Show, Grand Central Palace.
7-14—**San Francisco, Cal.** Motor Car Dealers Association of San Francisco seventeenth annual Pacific Automobile Show, Civic Auditorium. G. A. Wahlgren, show manager.
7-15—**Los Angeles, Cal.** Los Angeles Motor Car Dealers Association, twentieth annual show.
8-14—**St. Louis, Mo.** St. Louis Automobile Dealers Association Show, Midwest Industrial Terminal Building. J. A. Schlecht, show committee chairman.
9—**New York, N. Y.** Society of Automotive Engineers, show meeting.
9—**New York, N. Y.** Rubber Manufacturers Association. Meeting.
12—**New York, N.Y.** Society of Automotive Engineers, annual dinner, Pennsylvania Hotel.
12-13—**Springfield, Ill.** Illinois Automotive Trade Association, meeting.
14-21—**Toronto, Can.** National Motor Show of Canada, Automotive Building, J. L. Stewart, manager Canadian Automobile Chamber of Commerce, in charge.
14-21—**Cleveland, O.** Cleveland Autmobile Manufacturers and Dealers Association, show. Herbert Buckman, manager.
14-21—**Newark, N. J.** Newark Automobile Dealers Association, show, Armory. Claude E. Holgate, show manager.
14-21—**Milwaukee, Wis.** Milwaukee Automobile Trades, Inc., show. Palmer E. Hanson, manager.
14-21—**Buffalo, N. Y.** Buffalo Automotive Trade Association, show. Albert Hertzog, Jr., manager.
14-21—**Providence, R. I.** Rhode Island Automobile Dealers Association, show, Cranston Street Armory Ralph P. Lord, manager.
15-21—**Cincinnati, O.** Cincinnati Automobile Dealers Association, show. Music Hall. Harry T. Gardner, manager.
16-20—**Detroit, Mich.** Annual convention and road show.
16-20—**Detroit, Mich.** Highway and Building Congress.
16-21—**Brooklyn, N. Y.** Brooklyn Motor Vehicle Dealers Association, show. Ralph Ebert, manager.
16-21—**Philadelphia, Pa.** Philadelphia Automobile Trade Association, show.
16-21—**Detroit, Mich.** Steel Founders Society of America, annual meeting.
20-28—**New York, N. Y.** National Association of Engine and Boat Manufacturers, boat show, Grand Central Palace.
21-28—**Boston, Mass.** Boston Automobile Dealers Association, Boston Commercial Motor Vehicle Association, show, Mechanics Building. Chester I. Campbell, manager.
21-28—**Jersey City, N. J.** Automobile Show, Midtown Auto Salon, Frank Galland, manager.
21-28—**Baltimore, Md.** Auto Trade Association of Maryland, show, Fifth Regiment Armory. John E. Raine, manager.
21-28—**Detroit, Mich.** Detroit Automobile Dealers Association, show. H. H. Shuart, manager.
2-28—**Hartford, Conn.** Hartford Automobile Dealers Association, show, State Armory. Arthur Filoot, menager.
22-26—**Detroit, Mich.** Society of Automotive Engineers, annual meeting, Book-Cadillac.
23-28—**Rochester, N. Y.** Rochester Automobile Dealers' Association Show, Edgerton Park, A. C. Lohman, executive secretary.
23-28—**Pittsburgh, Pa.** Pittsburgh Automobile Dealers Association, show, W. N. Owings, manager.
25-28—**Harrisburg, Pa.** Harrisburg Automotive Trade Association, show, New Farm Show Building.
27-Feb. 15—**Cairo, Egypt.** International Salon.
28-Feb. 4—**Portland, Me.** Portland Automobile Dealers Association, show, Exposition Building. L. P. Borman, manager.
28-Feb. 4—**Chicago.** National Automobile Show, Coliseum.
28-Feb. 5—**Washington, D. C.** Washington Automotive Trades Association, show.
30-31—**Chicago, Ill.** National Automobile Dealers Association, convention, Medinah Athletic Club.
30-Feb. 4—**Springfield, Mass.** Automobile show.

FEBRUARY

1-11—**Indianapolis.** Twenty-second annual show, Indiana State Fair Ground.
6-11—**Ottawa, Canada.** Ottawa Automotive Trade Association, show, Coliseum. L. M. McCoy, chairman adv. committee.
6-11—**Denver, Col.** Automobile show.
7-11—**York, Pa.** York County Automobile Dealers Association, Inc., show. R. C. Keller, president.
9-11—**Springfield, Ill.** Springfield Automobile Dealers Association, show.
11-18—**Kansas City, Mo.** Kansas City Motor Car Dealers, show.
15-19—**Peoria, Ill.** Peoria Automotive Dealers Association show. Caterpillar Tractor Co. display room. C. W. Coons, executive secretary.
26-Mar. 4—**Seatle, Wash.** Seattle Automobile Dealers Association, show. Carl R. Heusy, manager.
27-Mar. 4—**Des Moines, Ia.** Des Moines Automobile Dealers Association, show. C. G. Van Vliet and Dean Schooler, managers.
27-Mar. 14—**New York City.** Chemical Exposition, Grand Central Palace.

APRIL

20-21—**Cleveland, O.** National Petroleum Institue, meeting.

SINGIN' SAM PICKS A PONTIAC EIGHT

(Continued from Page 1)

twice-weekly radio contest run by Carson Robison, NBC folk-music singer, also under the sponsorship of Barbasol. Thus five Pontiacs will be awarded each week hereafter.

Previous winners, twelve in all, will be awarded their cars on Christmas Eve, with local Pontiac dealers staging the presentations.

Pontiac officials announced themselves as highly pleased with the decision, and predicted that, because of Singin' Sam's popularity with the radio audience, his choice would be reflected in increased attendance at Pontiac showrooms Wednesday, December 28, when the new models are placed on display.

VARIABLE SPEED TRANSMISSION

The Boston Gear Works Sales Company is now offering the Reeves variable speed transmission in sixteen different sizes for power requirements from fractional to 150 horse power, in ranges of speed adjustability from 2:1 up to 16:1 ratios.

The basic operating principle is identical in all sizes and designs. Power received at a constant speed is converted into any of an infinite number of speeds by means of an efficient V-belt drive over two sets of conical discs, which are adjustable to an infinite number of changing pulley ratios. Regulation of speeds is stated to be instant and accurate and delivery of power positive at every speed.

CARBURIZING WITH BUTANE GAS

By C. W. SPICER

During recent years various hydrocarbon gases have been employed as the source of carbon for carburizing steel. Gaseous carburizing materials and methods of application have been the subject of many patents. Natural gas, the principal constituent of which is methane, has been used in some instances, with very satisfactory results.

Butane has long been known as a small-percentage component of natural gas and of crude petroleum, but has not been developed as a generally available commercial fuel until within the last very few years. It is obtained commercially from at least three more or less distinct sources:

(a) It is a by-product of compression plants at the origin of long-distance natural-gas transmission lines.

(b) It constitutes one of the numerous "light ends" at crude petroleum distillation plants.

(c) It is a by-product of the petroleum "cracking" still due to the overhydrogenation of small portions of the heavier hydrocarbons.

Butane is transported as a liquid under pressure in suitably constructed tank cars or in smaller pressure containers. The pressure varies with the temperature.

Propane is the next lighter hydrocarbon of the paraffin series and is obtained from the same sources as butane.

It may be used as a carburizer quite similar to butane, although to obtain the best results the temperature and rate of gas feed will be somewhat higher than when butane is employed.

These hydrocarbons begin to change or "crack" when the temperature is increased above certain limits, which vary with the hydrocarbon under consideration. The temperatures at which these changes begin are approximately as follows:

Methane	1200 F
Ethane	840 F
Propane	860 F
Butane	815 F

While the temperatures given are those at which changes begin to occur, temperature differences continue on up through the working ranges; that is, if methane cracks into certain other hydrocarbons at, say, 1700 F., butane may be expected to produce similar hydrocarbons at some lower temperature, perhaps 1500 to 1600 F. Further, it happens that most of the hydrocarbons obtained by cracking at these temperatures will crack again into other compounds at still higher temperatures, but it also appears that most of the hydrocarbons which are formed within the temperature range metallurgically suitable to the steel, namely, 1500 to 1800 F., do not in general change again under carburizing-furnace conditions until a temperature of 2000 F. or more has been reached, which of course is much too high for the steel from a metallurgical point of view.

Further, it appears that in carburizing, as in many chemical operations, the desired action is much more effective when certain of the hydrocarbon's constituents are in a nascent condition. This, considered with previous statements and some which follow, suggests the reason why each hydrocarbon has its own particular temperature range and rate of gas feed at which it is most effective, and outside of which the results may be far from satisfactory.

These changes may produce hydrocarbons which are much more complicated in their atomic structure than the original gas. Certain conditions where tar was given off, it formed a coating on the work being carburized which, when the temperature was further increased, seemed to dry out, leaving a coke-like coating which effectively prevented carbon penetration at any temperature. This coke-like substance adhered so tenaciously to the surface that nothing less drastic than a severe sand blast would remove it.

The various hydrocarbon gases mentioned may in general be transformed into other similar classes of hydrocarbons by suitable manipulation of temperature, pressure, rate at which the gas is fed through the retort, length of time that the gas is exposed to any specific temperature, the material of which the retort is composed (steel, copper, quartz, glass, etc.), and probably some other conditions.

(Continued on Page 7)

Ten Passenger Car Sales Leaders, November-October, 1932

REPORTS PUBLISHED AS THEY COME IN

Returns for today: Alabama, Arkansas, Connecticut, Georgia, Idaho, Indiana, Iowa, Louisiana, Missouri, Nebraska, New Jersey, New Mexico, Ohio, Oregon, Pennsylvania, Rhode Island and Washington. In this table, 34 states.

NOV., 1932 State	Sales	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
Alabama	676	Chev 233	Ford 206	Plym 83	Austin 39	Dodge 17	Po-WO 12	Buick 11	Ch-E 10	Rockne 8	DS-O 7
Arkansas	293	Ford 137	Chev 108	Plym 18	Dodge 6	E-O 3	†† 2	* 1			
Conn	837	Ford 166	Plym 157	Chev 154	Pont 52	Buick 48	Essex 32	De Soto 28	Dodge 26	Nash 17	O-Po 16
Delaware	118	Ford 46	Chev 26	Plym 18	Chrysler 5	B-Po 4	Packard 3	O-S 2	* 1		
Florida	755	Ford 273	Chev 160	Austin 109	Plym 58	Pontiac 29	B-D-E 18	Olds 12	Graham 9	Packard 8	CH-DS 7
Georgia	685	Ford 266	Chev 158	Plym 87	Austin 30	Buick 18	Rockne 16	E-Po 15	Dodge 13	Chrysler 9	Pa-S 8
Idaho	110	Chev 36	Ford 35	Plym 16	Pontiac 7	Buick 3	DS-N-O 2	* 1			
Illinois	1804	Ford 540	Chev 330	Plym 231	Pontiac 90	Essex 56	Buick 51	Stude 48	DS-N 43	D-Pa 41	Rockne 37
Indiana	854	Ford 285	Chev 177	Plym 73	Pontiac 43	Essex 36	WO 32	Buick 26	Rockne 25	Olds 24	Dodge 21
Iowa	653	Ford 216	Chev 191	Plym 72	Pontiac 35	Essex 27	WO 25	Buick 18	Dodge 15	Rockne 10	Olds 9
Kansas	779	Ford 278	Chev 214	Plym 53	Essex 45	Pontiac 40	WO 24	Rockne 23	Buick 16	Stude 13	Olds 12
Louisiana	609	Ford 307	Chev 130	Plym 42	Austin 20	Dodge 18	Pont 12	O-R 11	Nash 9	Stude 8	Buick 7
Maryland	636	Ford 211	Chev 114	Plym 91	Pontiac 26	Essex 25	Buick 24	Rockne 20	DS-D 14	Chrysler 13	Stude 12
Mich	1560	Ford 562	Plym 295	Chev 238	Pontiac 63	Essex 54	Dodge 37	Olds 35	B-R 34	Chrysler 28	DS-G 2
Minn	687	Ford 217	Chev 168	Plym 54	Pontiac 43	Buick 26	Olds 24	Hupp 23	DS-P 15	Rockne 14	Stude 13
Missouri	1403	Ford 442	Chev 344	Plym 209	Pont 71	Buick 44	D-O 28	Ch-Ds 27	Essex 22	R-S 21	Hup 18
Montana	84	Ford 26	Chev 23	Pontiac 10	Plym 6	Buick 4	O-WO 3	CH-DS 2	* 1		
Nebraska	380	Ford 142	Chev 116	Plym 41	Pont 13	Olds 11	Buick 9	WO 8	Rockne 6	Graham 5	Ch-D-E-S 4
N Hamp	201	Ford 67	Chev 44	Plym 27	Pontiac 9	Essex 8	B-R-S 6	† 4	Dodge 3	* 1	
N. Jer.	1673	Ford 415	Plym 319	Chev 192	Buick 95	Pont 93	Essex 55	Stude 51	Ch-Ds-WO 42	Rockne 41	D-O 37
N. Mex.	159	Ford 74	Chev 42	Plym 10	Buick 9	Pont 7	Dodge 4	Olds 3	E-S 2	* 1	
No Caro	912	Ford 446	Chev 184	Plym 85	Austin 37	Pontiac 29	Essex 26	Dodge 22	Buick 20	CH-R 11	Olds 7
N Dak	114	Ford 52	Chev 33	Plym 7	Pontiac 6	WO 5	Graham 4	Olds 2	* 1		
Ohio	2276	Ford 710	Plym 405	Chev 362	Pontiac 119	Essex 73	WO 61	De Soto 59	Dodge 55	Buick 49	Rockne 47
Oregon	331	Ford 121	Chev 75	Plym 58	Buick 14	Pontiac 13	De Soto 8	Olds 7	Dodge 5	Ch-E-N 4	G-S 3
Penn	3724	Ford 991	Chev 623	Plym 523	Pontiac 194	Buick 173	Essex 149	WO 126	Chrysler 118	Olds 113	Dodge 108
Rhode Is.	368	Ford 84	Plym 82	Chev 57	Pont 21	Essex 20	Buick 15	De Soto 12	Chrysler 11	Dodge 9	Olds 7
S. Car.	386	Ford 168	Chev 89	Austin 41	Plym 25	Essex 11	Pontiac 9	Dodge 8	Buick 7	De Soto 6	Olds 5
So Dak	145	Ford 54	Chev 42	Plym 13	Dodge 7	Pontiac 6	O-R 5	Chrysler 4	B-DS 3	Au-E-S 1	
Utah	120	Chev 31	Ford 29	Plym 12	B-Po 9	Essex 8	DS-D 4	Hu-N 3	G-Pa 2	L-R-S-WO 1	
Virginia	1696	Ford 514	Chev 268	Plym 91	Pontiac 48	Essex 36	Buick 19	De Soto 17	WO 16	Dodge 15	Ch-H 10
Wash	415	Ford 107	Plym 89	Chev 69	Buick 19	Stude 14	Pontiac 13	Olds 12	Ch-E 11	N-R 9	DS-D-Pa 7
W Va	367	Ford 154	Chev 59	Plym 33	Pontiac 21	Chrysler 13	Essex 12	Dodge 10	R-WO 9	Olds 8	De Soto 7
Wis	989	Ford 287	Chev 195	Plym 118	Pontiac 89	Olds 33	Essex 32	WO 27	Buick 26	D-N 24	Stude 23

OCT., 1932 State	Sales	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth
Alabama	891	Chev 364	Ford 264	Plym 51	Austin 34	Buick 25	WO 21	Ch-D-E 18	Pont 17	Stude 11	Rockne 7
Arkansas	1042	Chev 461	Ford 399	Plym 57	Dodge 27	Pontiac 22	N-WO 9	Chrysler 8	DS-R 7	Essex 6	B-Re 5
Conn	970	Ford 207	Chev 203	Plym 72	Buick 63	Essex 60	Pontiac 58	DS-R 33	Chrysler 29	Packard 28	Dodge 26
Delaware	170	Ford 67	Chev 38	Pontiac 13	Plym 11	Buick 7	Olds 6	E-S 5	DS-WO 3	Hu-N-Pa 2	* 1
Florida	965	Ford 350	Chev 216	Austin 145	Plym 78	Pontiac 29	Essex 27	Buick 17	Dodge 15	Olds 12	Auburn 11
Georgia	1012	Ford 400	Chev 293	Austin 48	Buick 42	Plym 38	Dodge 28	Rockne 24	Pont 23	Essex 19	H-O 13
Idaho	74	Ford 23	Chev 19	Plym 13	Dodge 4	B-G 3	Olds 2	* 1			
Illinois	2979	Ford 917	Chev 638	Plym 250	Pontiac 120	Buick 113	E-WO 97	De Soto 91	Olds 89	Stude 67	Chrysler 65
Indiana	1251	Ford 396	Chev 308	Plym 98	Essex 55	Olds 49	DS-Po 46	WO 43	Buick 30	CH-D-G-R 2	Pa-S 12
Iowa	1044	Chev 357	Ford 329	Plym 74	Essex 45	Pontiac 44	O-WO 34	Dodge 25	Buick 20	Rockne 19	Chrysler 12
Kansas	1321	Ford 440	Chev 437	Plym 84	Essex 60	Pontiac 50	Rockne 28	WO 26	Dodge 24	DS-O 22	Buick 21
Louisiana	910	Ford 385	Chev 307	Dodge 28	Austin 26	Plym 21	Rockne 19	Nash 17	Essex 15	O-Po 12	Stude 9
Maryl'd	1018	Ford 322	Chev 284	Plym 54	Pontiac 51	Olds 31	Rockne 30	Buick 28	Chrysler 27	DS-D-E 24	WO 23
Mich	2165	Ford 761	Chev 472	Plym 146	Pontiac 113	Essex 95	Buick 75	Olds 74	Rockne 51	D-WO 44	De Soto 40
Minn	1263	Ford 381	Chev 369	Plym 95	B-O-Po-R 42	WO 35	Essex 34	CH-Pa 24	Dodge 22	G-S 17	Hupp 16
Missouri	1904	Ford 642	Chev 534	Plym 162	Pont 76	B-O 56	E-WO 49	Dodge 48	De Soto 37	Chrysler 35	Rockne 27
Montana	260	Ford 86	Chev 65	Pont 26	Plym 14	B-O 10	Essex 8	Chrysler 7	N-WO 5	D-G-S 4	DS 3
Nebraska	634	Ford 228	Chev 201	Pont 45	Plym 34	WO 23	Olds 22	Buick 15	D-R 10	E-S 9	Chrysler 6
N Hamp	275	Ford 83	Chev 59	Plym 34	E-Po 14	Buick 11	Rockne 10	WO 8	Nash 6	Ch-DS 5	D-S 4
No Caro	1701	Ford 734	Chev 540	Plym 85	Essex 53	Austin 47	Ponitac 46	Olds 32	Buick 31	Dodge 27	Ch-W0 16
N Dak	191	Ford 70	Chev 64	Plym 22	Pontiac 7	B-E 5	Nash 4	CH-D-O-WO 3	H-Re 1		
N. Jer.	2201	Ford 576	Chev 449	Plym 154	Pont 119	Buick 114	Essex 82	Olds 80	WO 71	De Soto 62	Rockne 61
N. Mex.	204	Ford 81	Chev 69	B-P 9	Pont 7	Rockne 6	N-O 5	D-Pa-S 3	WO 2	Cadillac 1	
Ohio	3544	Ford 1148	Chev 741	Plym 295	Pont 187	WO 158	Buick 141	Essex 132	DeSoto 96	Olds 87	Rockne 82
Oregon	355	Ford 122	Chev 83	Plym 29	B-Po 17	Olds 10	Hu-N 9	D-S 8	E-G-WO 7	Chrysler 5	Rockne 4
Penn	5066	Ford 1339	Chev 1040	Plym 502	Essex 262	Pontiac 230	Buick 210	WO 200	Olds 167	Chrysler 162	D-R 107
R. Isl.	472	Ford 103	Chev 99	Plym 39	Buick 29	Pont 28	Chrysler 25	Essex 21	De Soto 20	R-WO 14	Stude 11
S. Car.	647	Ford 258	Chev 221	Plym 25	Austin 24	Essex 23	D-Po 16	Buick 12	DS-O 10	Auburn 7	CH-Pa 5
So Dak	188	Chev 57	Ford 54	Plym 18	Dodge 9	Rockne 8	E-O 7	Pontiac 6	B-WO 4	A-CH-G-Hu 2	* 1
Utah	153	Ford 43	Chev 36	Plym 15	Essex 12	Pontiac 8	De Soto 6	Rockne 4	*** 3	H-O-Pa-R 2	DV-F-L 1
Virginia	1285	Ford 546	Chev 343	Font 63	Plym 53	Essex 49	Buick 35	WO 27	DS-D 22	O-R 19	Stude 17
Wash	635	Ford 181	Chev 112	Buick 48	Plym 45	Pontiac 38	Olds 28	Essex 26	Rockne 19	S-WO 17	Ch--D 16
W Va	666	Ford 207	Chev 153	Plym 57	Essex 39	Dodge 27	Pontiac 26	Rockne 21	WO 20	Graham 19	Olds 17
Wisc	903	Ford 264	Chev 197	Plym 85	Pontiac 48	WO 45	Olds 37	Essex 35	Buick 29	Chrysler 19	Nash 17

KEY TO ABBREVIATIONS AND SYMBOLS

A—Auburn, Au—Austin, B—Buick, C—Cadillac, Ch—Chrysler, DV—De Vaux, DS—De Soto, D—Dodge, E—Essex, F—Franklin, G—Graham, H—Hupmobile, Hu—Hudson, LS—La Salle, L—Lincoln, N—Nash, O—Oldsmobile, Pa—Packard, P—Plymouth, Po—Pontiac, Re—Reo, R—Rockne, S—Studebaker, WK—Willys-Knight, WO—Willys-Overland. *All cars in this position registered only one. **Buick, Dodge, Hudson, Studebaker and Willys-Overland. *—Buick, Cadillac, De Soto, Dodge, Graham and Pontiac. ***Buick, Dodge, Hudson, Nash, Studebaker and Willys-Overland. †—Chrysler, De Soto, Graham, Nash and Willys-Overland. ††Buick, De Soto, Nash, Pontiac, Reo, Rockne and Austin.

MICHIGAN ALIEN LAW IS NULLIFIED

(Continued from Page 1)

attorneys for a group of petitioners who declared the act usurped powers lodged wholly with the Federal government. A temporary order was signed in June, 1931, by Judge O'Brien, and in December of the same year the law was declared unconstitutional.

Mr. O'Brien sought the permanent order, saying he wanted the matter cleared up before he took office as attorney general.

The law provided that all aliens in Michigan, within sixty days after the act became effective, be required to register with the state authorities and present proof of legal entry into the United States. When such proof was presented, they would be issued certificates of legal residence in the state. The commissioner of public safety, under the act, was given power to require photographs and fingerprints of the registrants.

Aliens entering the country illegally were denied the privilege of establishing or maintaining residence in the state, and those who came under the classification of "undesirable aliens" were denied the right to sojourn in the state. Penalties were provided for corporations who hired unregistered aliens or who had business dealings with "undesirable" aliens.

METAL GARAGES

Charles W. Carll's Sons, Trenton, N. J., are bringing out a new line of metal garages, which are constructed of galvanized metal sheets, angle iron roof supports and frame work, with details of assembly carefully worked out.

The joints divide the outside of the building into panels and give strength to the vertical sections. All sills, eaves and cross angles are 1½ by 1½ by ⅛ angle painted. Sill anchors are spaced about five feet on centers. Cross angles act as tees or separators to insure safety against wind pressure when the doors are open.

This company also puts out industrial buildings of metal sections, which may be used for light manufacturing of for subsidiary buildings about the larger plant.

New Dealers Appointed

NEW YORK

De Soto — Empire Garage, Port Jervis; Parmant Motors, Inc., Hollis.

Franklin—Winkler & Schluter, Inc., New York city; Bush Motor Company, Elmira.

Nash—Mac's Nash Sales & Service, Yonkers.

Rockne—Aldo Motor Sales, Inc., Bronxville; Park Garage, Cornwall on the Hudson.

Studebaker—Talbot Motors, New Berlin; Weller's Garage, Alexandria Bay.

OHIO

Rockne—W. F. Rockenberger, East Palestine.

PENNSYLVANIA

Nash—Wil-Bor Motor Service. Easton.

Rockne—Blue Tire Company, Northumberland.

SOUTH CAROLINA

Rockne—East Main Tire & Gasoline Company, Spartanburg.

SOUTH DAKOTA

Rockne—Burt Kuehn, Arlington.

TEXAS

Rockne—The Landry Motor Sales Company, Yoakum.

UTAH

Rockne—Zelph S. Calder, Vernal.

VERMONT

Graham-Paige—J. C. Warren & Son., St. Johnsburg.

Rockne—Nash - Borland Corp., Newport.

VIRGINIA

Nash—Norfolk Nash Motor Corp., Norfolk.

Rockne—Brickert Oil Company, Farmville.

WISCONSIN

Rockne—Geo. D. Keating, Inc., Madison; Peschke Service Garage, Markesan.

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS

Make and Model	Weight—5-P. Sedan	Wheel Base	Engine Make	Thermostat Used	Valve Arrangement	Cylinders	Bore and Stroke	Piston Disp.	Compression Ratio	Tax H. P.	Brake, H.P. and Peak R. P. M.	Pist. Make or Material	No. Main Br.	Oil Purifier	Fuel Cleaner	Carburetor	Air Cleaner
Auburn 8-100	3675	127-136	Lyc	Dole	L	8	3 x4¾	268.6	5.26	28.8	100@3400	*Alum	5	Pur	No	Str	AC
Auburn 12-160	4465	139	Lyc	Dole	HO	12	3⅛x4¼	391.1	5.50	46.8	160@3400	*Alum	4	Pur	Ste	Str	AC
Austin	‡1150	75	Own	No	L	4	2.2 x3	45.6	5.10	7.80	13@3000	Alum	2	No	No	Til	No
Buick 33-50	3866	119	Own	Yes	O	8	2⅞x4¼	230.4	5.25	27.61	86@3200	CI	5	AC	AC	Mar	AC
Buick 33-60	4401	127	Own	Yes	O	8	3⅛x4⅝	272.6	5.25	30.02	97@3200	CI	5	AC	AC	Mar	AC
Buick 33-80	4817	130	Own	Yes	O	8	3⅜x5	344.8	4.80	35.12	113@3200	CI	5	AC	AC	Mar	AC
Buick 33-90	4901	138	Own	Yes	O	8	3⅜x5	344.8	4.80	35.12	113@3200	CI	5	AC	AC	Mar	AC
Cadillac 355 B	4885	134-140	Own	Har	L	8	3⅜x4⅜	353.0	5.38	36.4	115@3000	CI	3	AC	AC	Own	AC
Cadillac 370 B	5175	134-140	Own	Har	O	12	3⅛x4	368.0	5.30	46.9	135@3400	CI	4	Cuno	AC	DL	AC
Cadillac 452 B	5625	143-149	Own	Har	O	16	3 x4	452.0	5.36	57.5	165@3400	CI	5	Cuno	AC	DL	AC
Chevrolet-Eagle	——	110	Own	No	L	6	3⅜x4	206.8	5.20	26.3	65@2800	CI	3	No	No	Car	AC
Chrysler Six	——	117	§Own	——	—	6	——	——	—	—	——	——	-	Yes	—	—	Yes
Chrysler Royal 8	——	120	§Own	Yes	—	8	3¼x4⅛	273.8	—	—	90@——	Alum	5	Yes	—	—	Yes
Chrysler Imperial	——	126	§Own	Yes	—	8	——	——	—	—	——	Alum	-	—	—	—	—
Cord (Fr. Wh. D.)	4620	137½	Lyc	Dole	L	8	3¼x4½	298.6	5.25	33.8	115@3300	*Alum	5	Pur	AC	Sch	No
De Soto Six	3008	113	§Own	Yes	L	6	3¼x4⅛	211.5	5.35	25.35	75@3400	*Alum	4	Pur	Yes	*B&B	Yes
De Vaux 6-80	2810	114	Con	Dole	L	6	3⅜x4	214.7	5.20	27.34	75@3600	Alum	4	—	Yes	Til	AC
Dodge Six	2620	111¼	§Own	Yes	L	6	3⅛x4⅜	201.3	5.50	23.44	75@3600	*Alum	4	—	Yes	Str	Yes
Dodge Eight D K	3468	122	§Own	Yes	L	8	3¼x4¼	282.1	6.20	33.80	100@3400	*Alum	5	Pur	Yes	Str	Yes
Essex Terraplane	2400	106	Own	——	L	6	2⅞x4¾	193.0	5.80	20.7	70@3200	Alum	3	No	Yes	Car	Yes
Essex-Gr. Su. 6 Std.	2870	113	†Own	No	L	6	2⅞x4¾	193.0	5.50	20.7	70@3200	Alum	3	No	Ste	Mar	AC
Ford A	2357	106	Own	No	L	4	3⅜x4¼	200.5	4.60	24.03	50@2600	Alum	3	—	—	Zen	—
Ford V8	†2447	106	Own	No	L	8	3⅛x3¾	220.0	5.50	30.0	65@3400	Alum	3	—	—	DL	—
Franklin Olympic	3600	118	*Own	Yes	O	6	3½x4¾	274.0	5.12	29.4	100@3100	Alum	7	Yes	Yes	Str	AC
Franklin Series 16	——	132	*Own	Ful	O	6	3½x4¾	274.0	5.12	29.4	100@3100	*Alum	7	Pur	Yes	Str	Yes
Franklin V-12	——	144	*Own	Ful	O	12	3¼x4	398.0	5.12	50.8	150@3100	*Alum	7	Pur	Yes	Str	Yes
Graham 6 (1933)	——	118	Own	Yes	L	6	3¼x4½	224.0	6.50	25.35	80@3400	*Alum	7	No	AC	Sch	AC
Graham 6	3205	113	Own	Yes	L	6	3⅛x4½	207.0	5.45	23.4	70@3200	*Alum	7	No	AC	Sch	AC
Graham 8	3665	123	Own	Bish-Bab	L	8	3⅛x4	245.4	6.50	31.25	90@3400	*Alum	5	AC	AC	DL	AC
Hudson Gr. 8 Std.	3270	119-126-132	†Own	No	L	8	3 x4½	254.1	5.80	28.8	101@3600	Alum	5	No	Ste	Mar	AC
Hupmobile 216	3115	116	Own	Bish-Bab	L	6	3⅜x4¼	228.1	5.00	27.34	75@3200	*Alum	4	**	Ste	Str	AC
Hupmobile 222	3580	122	Own	Bish-Bab	L	8	2⅞x4⅜	250.7	5.40	27.61	93@3200	Alum	5	Pur	Ste	Str	AC
Hupmobile 226	3755	126	Own	Bish-Bab	L	8	3⅛x4¾	279.9	5.47	30.10	103@3200	Alum	5	Pur	Ste	Str	AC
La Salle 345 B	4840	130-136	Own	Har	L	8	3⅜x4⅜	353.0	5.38	36.4	115@3000	CI	3	AC	AC	Own	AC
Lincoln V-8	5430	136	Own	Yes	L	8	3½x5	384.0	5.23	39.2	125@2900	Alum	5	No	AC	Str	AC
Lincoln V-12	5750	145	Own	Yes	L	12	3¼x4½	448.0	5.25	50.7	150@3400	Alum	7	No	AC	Str	AC
Marmon 8	3500	125	Own	Yes	L	8	3¼x4¾	315.2	5.50	33.8	125@3400	Alum	5	Flo	AC	Str	AC
Marmon 16	5360	145	Own	Pines	O	16	3⅛x4	490.8	5.75	62.5	200@3400	Alum	5	†	AC	Str	AC
Nash Big Six	3200	116	Own	Bish-Bab	L	6	3⅛x4⅜	201.3	5.10	23.4	70@3000	*Alum	7	Pur	AC	Str	AC
Nash Stand. Eight	3400	121	Own	Bish-Bab	L	8	3 x4⅜	247.4	5.10	28.8	85@3200	*Alum	9	Pur	AC	Str	AC
Nash Spec. Eight	3870	128	Own	Bish-Bab	O	8	3⅛x4¼	260.8	5.25	31.2	100@3400	*Alum	9	Pur	AC	Str	AC
Nash Adv. Eight	4350	133	Own	Bish-Bab	O	8	3⅜x4½	322.0	5.25	36.4	125@3600	*Alum	9	Pur	AC	Str	AC
Nash Ambas. Eight	4510	142	Own	Bish-Bab	O	8	3⅜x4½	322.0	5.25	36.4	125@3600	*Alum	9	Pur	AC	Str	AC
Oldsmobile F-32	3035	116½	Own	No	L	6	3⅛x4⅛	213.3	5.80	26.3	74@3200	CI	4	AC	AC	Str	AC
Oldsmobile L-32	3165	116½	Own	No	L	8	3 x4¼	240.3	5.90	28.8	87@3350	CI	5	AC	AC	Str	AC
Packard Twin Six	5635	142⅛-147⅛	Own	Yes	L	12	3⅛x4	445.5	6.00	56.7	160@3200	*Alum	4	Yes	Yes	Own	AC
Packard Stan. 8	4570	130-137	Own	Yes	L	8	3⅛x5	320.0	6.00	32.5	110@3200	*Alum	9	Yes	Yes	Own	AC
Packard De L. 8	5045	142-147	Own	Yes	L	8	3½x5	384.8	6.00	39.2	135@3200	*Alum	9	Yes	Yes	Own	AC
Packard Light 8	4115	127¾	Own	Yes	L	8	3⅛x5	320.0	6.00	32.50	110@3200	*Alum	9	Yes	Yes	Own	AC
Pierce-Arrow 54	4819	137-142	Own	Pines	L	8	3½x4¾	366.0	5.05	39.2	125@3000	*Alum	9	Pur	Ste	Str	AC
Pierce-Arrow 52	5080	142-147	Own	Pines	L	12	3⅜x4	429.0	5.05	54.6	150@3200	*Alum	7	Pur	Ste	Str	AC
Pierce-Arrow 53	5395	137-142	Own	Pines	L	12	3¼x4	398.0	5.05	50.7	140@3200	*Alum	7	Pur	Ste	Str	AC
Plymouth 6	2553	107	§Own	——	L	6	3⅛x4⅛	189.8	5.50	23.44	70@3600	Alum	4	Yes	Yes	*B&B	Yes
Pontiac 6	2870	114	Own	Yes	L	6	3⅛x3⅞	200.0	5.10	26.3	65@3200	CI	3	No	AC	Mar	Yes
Pontiac V-8	3225	117	Own	Yes	H	8	3⅛x3⅜	251.0	5.20	37.8	85@3200	CI	3	No	AC	Mar	Yes
Reo Fly. Cloud "S"	3405	117	Own	Yes	L	6	3⅛x5	230.0	5.30	23.4	80@3200	Lo-Ex	7	Yes	Yes	Zen	Yes
Reo Royal Cust.	4650	135	Own	Pines	L	8	3⅜x5	358.0	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo Royale	4375	131	Own	Pines	L	8	3⅜x5	358.0	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo 8-25	4050	125	Own	Yes	L	8	3 x4¾	268.6	5.37	28.8	90@3300	*Alum	5	Han	VS	Sch	Un
Rockne 6-65	2595	110	Own	Dole	L	6	3⅛x4⅛	189.8	5.00	23.4	66@3200	CI	4	No	AC	Str	No
Rockne 6-75	3000	114	Own	Dole	L	6	3¼x4⅛	205.3	5.00	25.4	72@3200	CI	4	Own	AC	Str	No
Studebaker 6-55	3170	117	Own	Dole	L	6	3¼x4⅝	230.0	5.00	25.4	80@3200	CI	4	No	Ste	Str	No
Studebaker Dict. 62	3240	117	Own	Bish-Bab	L	8	3⅛x3¾	221.0	5.00	30.0	85@3200	CI	9	Pur	Ste	Str	AC
Studebaker Com. 71	3545	125	Own	Bish-Bab	L	8	3⅛x4¼	250.4	5.20	30.0	101@3200	*Alum	9	Pur	Ste	Str	AC
Studebaker Pres. 91	4260	135	Own	Dole	L	8	3⅛x4⅜	337.0	5.10	39.2	122@3200	*Alum	9	Han	Ste	Str	AM
Stutz LAA	4383	127½	Own	No	O	6	3⅜x4½	241.5	5.50	27.3	85@3150	*Alum	7	Pur	AC	Zen	UN
Stutz SV-16	4885	134½-145	Own	No	O	8	3⅜x4½	322.0	5.10	36.4	156@3900	*Alum	9	Pur	AC	Zen	AM
Stutz DV-32	*5281	134½-145	Own	Bish-Bab	O	8	3⅜x4½	322.0	5.50	36.4	113@3300	*Alum	9	Pur	Ste	Str	AC
Will.-Ov'land 6-90A	2814	113	Own	Yes	L	6	3¼x3⅞	193.0	5.26	25.35	65@3400	CI	4	No	AC	Til	Til
Will.-Ov'land 8-88A	3250	121	Own	Yes	L	8	3⅛x4	245.4	5.26	31.25	80@3200	CI	5	No	AC	Til	AC
Willys-Knight 66E	3775	121	Own	Yes	K	6	3⅜x4¾	255.0	5.50	27.34	87@3200	*Alum	7	Pur	Til	Til	AC

BASES SUCCESS ON ALLIED SERVICE, STRONG FOLLOW-UP

(Continued from Page 3)

two follow-ups are needed to make 90 per cent. of our allied service customers repeat. The remaining 10 per cent. include transients, tourists, people living too far away, etc., so that the percentage of actual customer possibilities who do not repeat is small.

"We go over our customer cards regularly, and if a motorist has suddenly stopped repeating after having his car serviced here regularly, we write him a letter, phone his home or make a personal call. Old customers are worth too much money to let them pass away without making some attempt to bring them back.

"Gearing the follow-up one month after the service job is the best average the tire dealer can hit upon," he contends. "We all know that the motorist should change his oil every 500 miles, relubricate every 1,000 miles, change his spark plugs every 10,000 miles, etc., but following him up on this basis is too complicated.

"It is estimated that the average passenger car travels 900 to 1,000 miles monthly, so if the tire dealer can induce his allied service customers to repeat once every thirty days he is getting results that should show profits.

"A follow-up system, regardless of how good it is, will be of little value unless the services performed and the merchandise sold are top quality. Due to the depression, cut prices are legion in the automotive field, but our customers who fall for this sub-standard merchandise and service always come back.

"Today, as ever before, it pays to sell the best and charge for it. We average $1.50 to $2.50 for a lubricating job, yet all around us are service station operators willing to lubricate for 85 to 95 cents. If a motorist questions our price as too high, we tell him that we lubricate according to manufacturer's specifications, that we use from four to six different quality greases on every job and that the accuracy with which we do the work assures minimum repair bills.

"We instruct our service men to keep forcing in the grease until clean, yellow grease comes out the other end. Most cut-price operators merely squirt in grease until the old black grease begins to appear on the other side. This is inefficient lubrication and dangerous. The gritty, black grease should be entirely eliminated on a quality job."

HARTFORD DEALERS TO STAGE SHOW JAN. 21-28

Hartford, Conn., Dec. 20.—The Hartford Automobile Dealers' Association will hold its twenty-sixth annual show the week of January 21 to 28 at the state armory, according to announcement by George E. Bennett, of Franklin-Bennett, Inc., 51 Farmington Ave., who is chairman of the show committee.

Arthur Fifoot, executive secretary of the association, will again be show manager. Other members of the committee are Harry C. Hine, Dwight A. Burnham, A. C. Hine and H. B. Smith.

Members of the association have already contracted for the entire floor space in the armory, Mr. Bennett said. Plans are now being made for special decorations and entertainment.

A model bungalow, erected in the auditorium and completely furnished by dealer-members, will be a special feature. It is expected to prove an attraction for housewives, who frequently do not turn out for automobile shows as largely as might be desired.

MOTOR COMPETITION IN CANADIAN CONFERENCE

Montreal, Dec. 20.—Representatives of provincial and federal governments in Canada will confer at Ottawa next month on problems of motor vehicle and railway competition. Various suggestions as to provincial legislation to curb motor competition will be considered.

ELMIRA SHOW

Elmira, N. Y., Dec. 20.—The Elmira Automobile Merchants Association will conduct an auto show during the week of January 30 in that city. Leon B. Keeton will be chairman of the show committee. He will be assisted by R. D. Dunton, Floyd Carey and Howard H. Clute.

OF PRESENT AMERICAN PASSENGER CAR MODELS

Make and Model	Front End Drive	Ignition System	Gen. and Starter	Clutch	Transmission Make	Transmission Speeds	Transmission Type	Universals	Rear Axle	Ratio	Brakes	Steering Gear	Springs Rear	Spring Shackles	Chassis Lubric.	Tires
Auburn 8-100	Chain	Del-R	*Del-R-S	Long	D	3	SM-LGS-F	U	Col	*4.70	M	Ross	S 56¾	Own	Bijur	*17x5.50
Auburn 12-160	Link	Del-R	*Del-R-S	Long	D	3	SM-LGS-F	M	Col ½	*4.08	Bendix	Ross	S 56¾	Own	Bijur	*17x6.00
Austin	Gear	Aut-L	*Aut-L	Rock	WG	3	——	S	Sal ½	5.25	M	Say-B	Cant	Own	Al-Z	18x3.75
Buick 33-50	Tex	Del-R	Del-R	*Own	O	3	SM	O	Own ½	4.70	Own	Sag	S 56	Own	Zerk	17x6.00
Buick 33-60	Tex	Del-R	Del-R	*Own	O	3	SM	O	Own ¾	4.60	Own	Sag	S 55¾	Own	Zerk	17x6.50
Buick 33-80	Tex	Del-R	Del-R	*Own	O	3	SM	O	Own ¾	4.27	Own	Sag	S 58⅞	Own	Zerk	17x7.00
Buick 33-90	Tex	Del-R	Del-R	*Own	O	3	SM	O	Own ¾	4.36	Own	Sag	S 58⅞	Own	Zerk	17x7.00
Cadillac 355 B	Morse	Del-R	Del-R	*Own	O	3	SM	S	Own ¾	4.60	Own M	Sag	S 58	Own	Alem	17x7.00
Cadillac 370 B	Morse	Del-R	Del-R	*Own	O	3	SM	S	Own ¾	4.80	Own M	Sag	S 58	Own	Alem	17x7.50
Cadillac 452 B	Morse	Del-R	Del-R	*Own	O	3	SM	S	Own ¾	4.64	Own M	Sag	S 60	Own	Alem	18x7.50
Chevrolet-Eagle	Gear	Del-R	*Del-R†	Own	O	3	SM-O-F	O	Own ½	4.11	Own M	Own	S 54	Own	Alem	18x5.25
Chrysler Six	——	——	——	——	O	-	——	—	——	—	——	——	——	Sil-U	——	——
Chrysler Royal 8	——	——	——	*——	O	-	O-F	—	Own	—	——	——	——	——	——	——
Chrysler Imperial	——	——	——	*——	O	-	O-F	—	——	—	——	——	——	Sil-U	——	——
Cord (Fr. Wh. Dr.)	Link	Del-R	*Del-R	Long	D	3	——	*	Col F	4.80	H	Gem	S 62	Own	Bijur	18x7.00
De Soto Six	Chain	Del-R	Del-R	†Own	O	3	O-F	—	Own ½	4.62	H	Own	S 53⅜	——	Alem	18x5.25
De Vaux 6-80	Morse	Aut-L	*Aut-L	Borg	W	3	W-F	S	‡AD ½	4.40	M	†W	S 54¼	Tryon	Al-Z	19x5.25
Dodge Six	Chain	——	—	*—	—	3	—— F	—	Own ½	4.37	H	——	S 53+	Sil-U	——	16x6.00
Dodge Eight D K	Chain	Del-R	Del-R	*—	O	3	—— F	—	Own ½	4.10	H	Gem	S 55	——	Al-Z	18x6.00
Essex Terraplane	Gear	Aut-L	*Aut-L	Own	O	3	SM —	S	Own ½	—	Bendix	Gem	S 48	Own	Alem	17x5.25
Essex-Gr. Su. 6	Morse	Aut-L	*Aut-L-S	*Own	O	3	SM-WG-F	S	Own ½	4.63	Bendix	Gem	S 54⅛	Own	Alem	18x5.25
Ford A	Var-G	Own	*Own	Own	O	3	SM	O	Own ¾	4.11	M	Gem	S-Tr 39	Own	Al-Z	18x5.25
Ford V8	Var-G	Own	*Own	Own	O	3	SM	O	Own ¾	4.11	M	Gem	S-Tr	Own	Al-Z	18x5.25
Franklin Olympic	Chain	Del-R	*Del-R-S	Long	WG	3	SM-F	S	Own ½	4.30	H	Ross	El 42	Tryon	Al-Z	17x6.00
Franklin Series 16	Chain	Del-R	*Del-R-S	Br-L	W	3	SM-BW-F	M	Own ½	4.73	H	Gem	El 42	—	Al-Z	19x6.50
Franklin V-12	Chain	Del-R	*Del-R-S	Long	W	3	SM-BW-F	M	Col ½	5.10	H	Ross	S 60	Faf	Al-Z	17x7.50
Graham 6 (1933)	Link	Del-R	Del-R	*Long	WG	3	SM	U	Sal ½	4.55	H	Ross	S 54	ERS	Al-Z	17x6.00
Graham 6	Link	Del-R	Del-R	Long	WG	3	WG-F	U	Sal ½	4.45	H	Ross	S 54	ERS	Al-Z	17.5.50
Graham 8	Link	Del-R	Del-R	Long	WG	3	SM-WG-F	S	Sal ½	4.30	H	Ross	S 54	ERS	Al-Z	17x6.00
Hudson Gr. 8	Morse	Aut-L	*Aut-L-S	*Own	O	3	SM-WG-F	S	Own ½	†4.63	Bendix	Gem	S 54⅛	Own	Alem	*17x6.00
Hupmobile 216	Chain	Aut-L	*A-L-S-‡	Borg	WG	3	SM-WG-F	M	Spic ½	4.54	M	Ross	S 53	Tryon	Al-Z	18x5.50
Hupmobile 222	Morse	Aut-L	*A-L-S-‡	Borg	WG	3	SM-WG-F	U	Own ½	4.36	M	Gem	S 57½	Rub-B	Al-Z	17x6.00
Hupmobile 226	Morse	Aut-L	*A-L-S-‡	Long	D	3	SM-DG-F	U	Own ½	4.36	M	Gem	S 57½	Rub-B	Al-Z	17x6.50
La Salle 345 B	Morse	Del-R	Del-R	Own	O	3	SM	S	Own ¾	4.60	Own M	Sag	S 58	Own	Alem	17x7.00
Lincoln V-8	Chain	Aut-L	*Aut-L	Long	O	3	SM-F	S	Own F	4.58	*Bendix	Own	S 62	Own	Alem	18x7.00
Lincoln V-12	Chain	Aut-L	*Aut-L	Long	O	3	SM-F	S	Own F	4.58	*Bendix	Own	S 62	Own	Alem	18x7.50
Marmon 8	Diam	Del-R	*Del-R	*—	D	3	SM	S	Spic ½	4.08	Bendix	Ross	S 57	Tryon	Alem	18x6.00
Marmon 16	Diam	Del-R	Del-R	Rus	M	3	SM	S	Spic ½	3.78	Bendix	Ross	S 59½	**	Alem	18x7.00
Nash Big Six	Chain	Aut-L	*A-L-S-‡	Borg	O	3	SM-DG-F	O	Own ½	4.70	M	Ross	S 54	ERS	Alem	18x5.25
Nash Stand. Eight	Chain	Aut-L	*A-L-S-‡	Borg	O	3	SM-DG-F	O	Own ½	4.44	M	Ross	S 54	ERS	Alem	18x5.50
Nash Spec. Eight	Chain	*Aut-L	*A-L-S-‡	Borg	O	3	SM-DG-F	O	Own ½	4.43	Bendix	Gem	S 55¾	*	Bijur	17x6.50
Nash Adv. Eight	Chain	*Aut-L	*A-L-S-‡	Borg	O	3	SM-DG-F	O	Own ½	4.50	Bendix	Gem	S 57⅛	*	Bijur	18x7.00
Nash Ambas. Eight	Chain	*Aut-L	*A-L-S-‡	Borg	O	3	SM-DG-F	O	Own ½	4.50	Bendix	Gem	S 57⅛	*	Bijur	18x7.00
Oldsmobile F-32	Chain	Del-R	Del-R	Borg	M	3	SM-DG-F	S	Own ½	4.56	Bendix	Sag	S 54½	Tryon	Al-Z	17x6.00
Oldsmobile L-32	Chain	Del-R	Del-R	Borg	M	3	SM-DG-F	S	Own ½	4.77	Bendix	Sag	S 54½	Tryon	Al-Z	17x6.00
Packard Twin Six	Morse	Aut-L	*Dyn	*Long	O	3	SMF	M	Own ½	4.69	*M	Own	S 60½	Own	Bijur	18x7.50
Packard Stan. 8	Morse	NE	*Dyn	Long	O	3	SM	M	Own ½	4.66	M	Own	S 60½	Own	Bijur	19x6.50
Packard De L. 8	Morse	NE	*Dyn	Long	O	3	SM	M	Own ½	4.66	M	Own	S 60½	Own	Bijur	19x7.00
Packard Light 8	Morse	NE	*Dyn	*Long	O	3	SMF	S	Own ½	4.66	M	Own	S 56	Own	Alem	17x6.50
Pierce-Arrow 54	Chain	Del-R	*Del-R-S	Long	O	3	SM-WG-F	S	Own ½	4.42	Bendix	Ross	S 61	Faf	Myers	18x6.50
Pierce-Arrow 52	Chain	Del-R	*Del-R-S	Long	O	3	SM-WG-F	S	Own ½	4.42	Bendix	Ross	S 61	Faf	Myers	18x7.00
Pierce-Arrow 53	Chain	Del-R	*Del-R-S	Long	O	3	SM-WG-F	S	Own ½	4.58	Bendix	Ross	S 61	Faf	Myers	18x7.00
Plymouth 6	Chain	—	—	Own	O		O-F	O	Own ½	4.37	H	—	S 53+	Sil-U	—	17x5.25
Pontiac 6	Chain	Del-R	Del-R	Own	M	3	SM-BW-F	M	Own ½	4.55	Bendix	Sag	S 54	Inlox	Al-Z	18x5.25
Pontiac V-8	Link	Del-R	Del-R	Own	M	3	SM-BW-F	M	Own ½	4.22	Bendix	Sag	S 54½	Inlox	Al-Z	17x6.00
Reo Fly. Cloud "S"	Chain	Del-R	*Del-R-S	Long	O	3	SM-F	S	Own ½	4.60	H	Ross	S 55	Tryon	Al-Z	17x5.50
Reo Royale Cust.	Morse	Del-R	Del-R-‡	Long	O	3	SHG	U	Own ½	4.07	H	Ross	S 57½	Own	Far	18x6.50
Reo Royale	Morse	Del-R	Del-R-‡	Long-	O	3	SHG	U	Own ½	4.07	H	Ross	S 57½	Own	Al-Z	18x6.50
Reo 8-25	Link	Del-R	*Del-R	Long	O	3	SHG	U	Own ½	4.90	H	Ross	S 55¾	Own	Al-Z	17x6.50
Rockne 6-65	Morse	Aut-L	*Aut-L-S	Borg	WG	3	SM-BW-F	M	Spic ½	4.55	Bendix	Ross	S 54	Tryon	Al-Z	18x5.25
Rockne 6-75	Chain	Aut-L	*Aut-L-S	Long	WG	3	SM-BW-F	M	Own ½	4.73	Bendix	Ross	S 54	Tryon	Al-Z	18x5.50
Studebaker 6-55	Chain	Del-R	*Del-R-S	Long	O	3	SM-BW-F	S	Own ½	4.27	Bendix	Ross	S 54	Tryon	Alem	18x5.50
Studebaker Dict. 62	Cel	Del-R	*Del-R-S	Long	O	3	SM-BW-F	S	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	18x5.50
Studebaker Com. 71	Cel	Del-R	*Del-R-S	Long	O	3	SM-BW-F	S	Own ½	4.73	Bendix	Ross	S 56	Faf	Alem	18x6.00
Studebaker Pres. 91	Var-G	Del-R	*Del-R-S	Borg	O	3	SM-BW-F	S	Own ½	4.31	Bendix	Ross	S 60	Faf	Alem	18x6.50
Stutz LAA	Link	Del-R	Del-R	Borg	D	4	——	U	Sal ½	5.10	H	Gem	S 60	Own	Bijur	19x6.50
Stutz SV-16	Link	Del-R	Del-R	Long	M	3	SM	M	Tim ½	4.75	H	Gem	S 62¾	Own	Bijur	*18x7.00
Stutz DV-32	Link	Del-R	Del-R	Long	M	3	SM	M	Tim ½	4.50	H	Gem	S 62¾	Own	Bijur	*18x7.00
Willys-Over. 6-90 A	Link	Aut-L	*Aut-L-S	Own	O	3	SM-F	S	Own ½	4.60	Bendix	Own	S 51	Tryon	Alem	18x5.25
Willys-Over. 8-88 A	Link	Aut-L	*Aut-L-S	Borg	O	3	SM-F	S	Own ½	4.40	Bendix	Ross	S 56	Tryon	Alem	18x5.50
Willys Knight 66E	Link	Aut-L	*Aut-L-S	Rock	O	3	SM-F	S	Own ½	4.18	Bendix	Ross	S 56	Tryon	Alem	17x6.00

KEY TO ABBREVIATIONS

Weight — ‡Austin standard 2 passenger coupe. Stutz DV 145-inch wheel base weighs 5,352. †Tudor sedan.

Engine Make—Con, Continental; Lyc, Lycoming. *Air-cooled with spot temperature control. †Thermo syphon water circulation. ‡Floating power.

Thermostat—Bish-Bab, Bishop & Babcock; Dole, Dole Valve Co., Chicago, Ill.; Ful, Fulton Co.; Har, Harrison; Pines, Pines Winterfront.

Valve Arrangement—L, L head; H, horizontal; O, overhead; K, sleeve valve; HO, Horizontal opposed.

Piston Material—*Alum, aluminum with invar struts; Alum, aluminum alloy; CI, cast iron; Lo-Ex, Aluminum Corporation of America.

Oil Purifier—Han, Handy; AC, AC Spark Plug Company; Flo, Floato; Cuno, Cuno Engineering Corp.; Pur, Purolator. †Using AC with Floato attachment. **Using both AC and Purolator.

Fuel Cleaner—AC, AC Spark Plug Co.; Ste, Stewart-Warner; Til, Tillotson; V-S, Van Sicklen.

Carburetor—Sch, Wheeler Schebler; Zen, Zenith; Mar, Marvel; Car, Carter; Str, Stromberg; DL, Detroit Lubricator; Til, Tillotson; B&B, Ball & Ball; *Designed by Chrysler, made by Carter Carburetor Company.

Air Cleaner—AC, AC Spark Plug Company; AM, Air Maze; Un, United; Til, Tillotson.

Front End Drive—Link, Link Belt; Tex, Texolite; Cel, Celeron; Diam, Diamond Chain; Morse, Morse Chain Company; Var, various makes of chains; Var-Gr various makes of gears.

Ignition, Generator and Starter—Aut-L, Auto-Lite; A-L, Auto-Lite; Del-R, Delco-Remy; Dyn, Owen-Dyneto Corp.; NE, North East. †Starteator equipped. *Nash—Indicates twin ignition.

*Bendix starter; S, startix equipped. ‡Startix optional equipment.

Clutch—Borg, Borg & Beck; Br-L, Brown-Lipe; Rock, Rockford Machine; Long, Long Clutch Company; Rus, Russell Mfg. Co.; *Bendix Clutch Control; †Automatic clutch optional at additional cost.

Transmission Make—D, Detroit Gear; WG, Warner Gear Company; M, Muncie Gear Company; O, Own; W, Warner Corp.

Transmission Type—DG, Detroit Gear & Machine Co.; LGS, The LGS Corp.; F, Free Wheeling; SM, Synchro Mesh; BW, Borg-Warner; WG, Warner Gear Co.; SHG, Synchronized Herringbone Gear; O, Own.

Universals—U, Detroit Universal Products; S, Spicer Mfg. Corp.; O, Own; M, Mechanics Universal Joint Company. *Cord using Detroit Universal Products and Mechanical Universal Joint Co.

Rear Axle—Col, Columbia; Sal, Salisbury; Spic, Spicer Mfg. Corp.; Tim, Timken; ½ Semi-floating; ¾, three-quarter floating; F, full floating. ‡Adams used on custom models.

Ratio—*Dual ratio optional; †Hudson 132-in. wheel base models have rear axle ratio of 5.10.

Brakes — H, hydraulic; M, mechanical; Bendix, Bendix Brake Corp.; *Equipped with Vacuum Booster.

Steering Gear—Gem, Gemmer; Ross, Ross Gear and Tool Company; Sag, Saginaw; Say-B, Saylor-Beall Manufacturing Company; W, Warner Corp.; †Ross used on custom models.

Rear Springs — S, semi-elliptic; El, full elliptic; Cant, semi-cantilever; S-Tr, semi-transverse.

Spring Shackles — Tryon, Willys-Morrow Company; Rub B, Rubber Shock Insulator Company; Faf, Fafnir Bearings Company; ERS, Eaton Products, Inc.; Inlox, Inland Mfg. Co.; *Own, front; ERS, rear. Sil-U, Silent U Pressed Metals of America, Inc., Port Huron, Mich. **Using both Rubber-B and Fafnir.

Chassis Lubricator—Alem, Alemite; Al-Z, Alemite Zerk; Bijur, Bijur Lubricating Corp.; Far, Farval Myers Chassis Lubricating Co.

Tires—Auburn 8 custom models equipped with 17x6.00. *Hudson 132-in. wheel base models equipped with tires 17x6.50; Stutz 145-in. wheel base models have 20x7.00 tires.

HOFFMAN TALKS TO BUS DRIVERS ON "SAFETY"

Newark, N. J., Dec. 20.—Harold G. Hoffman, commissioner of motor vehicles, addressed the Essex division group of Public Service bus employees in the Terminal Building on "Safety." At this meeting the men received bonus checks for safe driving during the four months' period from August to December under the no-accident bonus plan of the company. Representatives of the operating, safety educational and claim departments of Public Service Coordinated Transport also spoke. The program included a safety educational motion picture.

REPORT BUSINESS GAIN

Holyoke, Mass., Dec. 20.—An increased volume of business is reported by the Coburn Trolley Track Manufacturing Company of Holyoke in its new line of overhead-slide doors, for which a patent application was filled recently. These doors are designed for garage.

CARBURIZING WITH BUTANE GAS

(Continued from Page 5)

In view of all the possibilities, it is not strange that experimenters with butane for carburizing have experienced much difficulty when trying to use it according to methods previously developed for methane (natural gas) or solid carburizers.

The most commonly accepted theory regarding solid carburizers seems to be that carbon monoxide (CO) is the intermediary between the carburizer and the steel. Experiments indicate that steel will take up little or no carbon directly from solid carbon in a vacuum, that is, in the absence of gas. The experience of the author and of at least one large user of natural gas (methane) as a curburizing material, seems to prove conclusively that no carbon monoxide, cyanogen (CN), or any other compound of oxygen or nitrogen is essential to satisfactory carburizing.

Results obtained after various disappointing tests with butane may be summarized as follows:

At 1450 F. large quantities of tar, naphthalene, etc., were obtained with no case visible after 4 hr. at heat.

At 1500 F. there was less tar and other undesired products and a trace of low-carbon case after 4 hours at heat.

At 1550 F. there was very little of tar and undesired products.

At 1575 F. a satisfactory case on moderately heavy work was obtained in 7½ hrs. with absence of undesirables.

At 1600 F. the time was cut to 5 hrs. for 0.035-in. to 0.040-in. case as indicated by the color test.

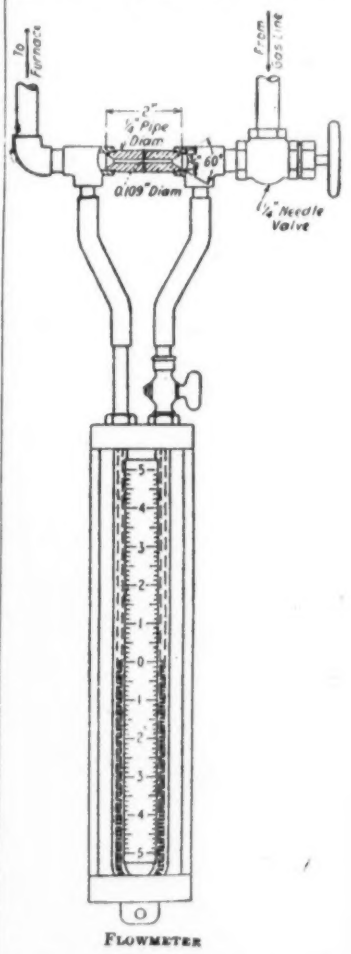
At 1625 F. to 1670 F. the corresponding case was obtained in 4 hrs.

At 1700 F. the time was increased to 5 hrs., and as the temperature increased above that point the carburizing time increased rapidly with a similar supply of carburizing gas.

The field above 1700 F. was not exhaustively investigated with larger gas flow for three reasons:

1. Grain structure of the material is less satisfactory.
2. Larger gas flow would be less economical.
3. Depreciation of the furnace and equipment would be increased.

For a rotary type of furnace which has a capacity from 500 to 800 lbs.



FLOWMETER

of work per charge, it has been found that a butane-gas flow of 15 cu. ft. per hr. for the first half of the carburizing period and 8 to 10 cu. ft. per hr. for the last half of the period, gives satisfactory results as to quality and speed instead of the 48 cu. ft. per hr. previously mentioned.

A convenient and inexpensive flowmeter may easily be made for each furnace in the manner illustrated. A nozzle with reduced area is placed in the gas-flow line and a standard U-gage from any instrument maker with a 10-inch range is attached to the flow line on either side of the nozzle so that the U-gage measures directly in inches of water the pressure drop through the nozzle. Suitable calibration makes it easy to read in cubic feet per hour for a given size of nozzle. Exact calibration will vary not only with the diameter of the nozzle aperture but with its length, smoothness of finish, angle and freedom from burrs at the ends, etc. A nozzle of the dimensions shown in the sketch, with plain drilled hole and no especial care given to finish, will pass approximately the following quantities at atmospheric pressure from an initial pressure of 8 inches of water, viz.:

Six-inch water pressure drop as shown by U-gage, 23 cubic feet per hour; 4-inch drop, 19 cubic feet; 2½-inch drop, 15 cubic feet; 1-inch drop, 9 cubic feet; ½-inch drop, 6 cubic feet.

(To be Continued)

Production--Engineering--Factory

ARC WELDING IN BUILDING TRUSSED FRAME TRAILERS

(Second Installment)

In general, the greater part of the joints are full welded, inasmuch as most of the members are narrow where crossed or lapped. Such pieces as track under reinforcements, fender angles, and other long joints are space-welded. The fenders themselves are of 14-gauge sheet, with a light angle at the edge.

A conservative estimate of the added weight for riveted construction is 250 pounds. Various estimates of the difference in labor cost place it at approximately 50 per cent. more for the riveted design. On this basis, an estimate under somewhat average conditions would show shop costs as follow:

Welded	
2,500 lbs. steel at .03	$75.00
10 per cent., handling	7.50
Labor, at .03 per pound	75.00
Overhead, 100 per cent. labor	75.00
Total	$232.50
Riveted	
2,750 lbs. steel at .03	$82.50
10 per cent. handling	8.25
Labor (add 50 per cent., to weld)	112.50
Overhead, 100 per cent. labor	112.50
Total	$315.75
Per cent. increase in riveting, 36.	

These savings show up as added profits. To the manufacturer, this comes from an additional volume of business resulting from reduced costs and selling prices, and attractive, efficient designs. The real savings and earnings come to the users of trailer.

This design compares in service with trailers weighing 1,000 to 2,000 pounds more. An estimate of the average saving from all sources in the use of this light equipment is 3 cents per mile.

With freight carriers there are the same possibilities of savings. In addition considerable savings result from reduced taxation on lighter weight.

Five Lincoln welders are used in building trailers of this type. The most popular type is adjusted for thirty-five to forty volts and 200 amps., working with about seventy-five feet of cable. "Stoody" positive welding rod, 5-32 inch in diameter, is generally employed.

TRAFFIC CONTROL MODERNIZATION

A traffic-signal controller designed to permit the extension of a new obsolete impulse control system with modern composite equipment has been announced by the General Electric Company. Such a controller can be built to correlate any impulse system with any composite control system.

It consists of a special transmitter timer, composed largely of standard composite timer parts, mounted in a standard housing, together with a small panel on which are mounted three relays and a snap switch. The relays handle the solenoid and reset currents for the impulse receivers; the snap switch is for the complete shutdown of the impulse system.

The controller is a complete master timer for the impulse system; it maintains precision timing in the impulse system, which permits timing co-ordination with synchronous control systems, with or without interconnection as desired; and it provides for inter-connection with the composite system, so that the impulse system can form an integral part of the composite system.

As a master timer it provides such features as remote selection of any of the ten total time cycles, maintenance of co-ordination by means of single automatic reset, and complete shutdown for the impulse system. Its precision timing and range of available total time cycles is the same as the standard composite intersection controller; it will maintain timing co-ordination with composite and older types of synchronous intersection controllers (within the range of time cycles that the latter provide) without the necessity for interconnection.

The incorporation of the remote control features of the standard Novalux intersection controller permits the handling of the impulse system as an integral part of the composite system, inasmuch as total cycle changes and system shutdown are effected by the same means for both systems. A form of triple reset, a feature of the very latest type of apparatus, is also used in this controller.

Through synchronous motor drive this type of transmitter permits the co-ordination of an impulse system with non-interconnected synchnonous units, a highly useful and desirable feature where further cable interconnection would perhaps be uneconomical. As it also permits the extension of an interconnected system with the latest type of equipment, it enables the purchaser to use modern apparatus with a much greater degree of functional flexibility, making it unnecessary for him to continue to purchase obsolete equipment of limited flexibility.

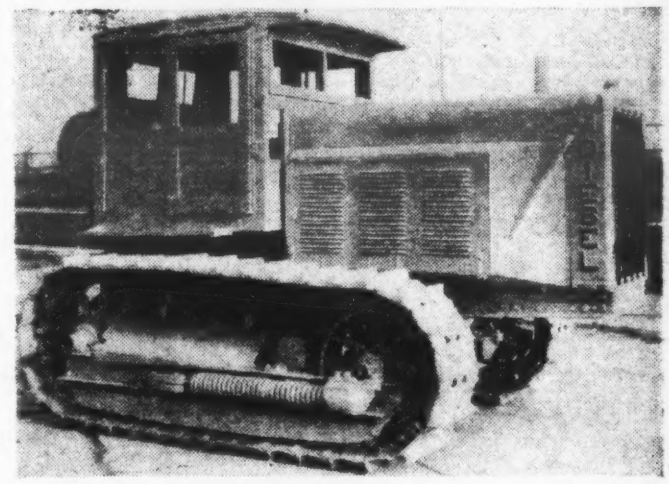
NEW ENCLOSED AIR CIRCUIT BREAKERS

A new line of manually and electrically operated, trip-free, multi-pole air circuit breakers for the control and protection of circuits in all fields has been announced by the General Electric Company. These breakers, designed as Type AB-2, are obtainable in metal-enclosed construction, with or without pull box, metal-enclosed with pull box and disconnecting devices to permit inspection of the breaker while it is disconnected from the source, or mounted in dead-front and metal-enclosed switchboards which are shipped assembled from the factory.

The ratings of this new apparatus ranges from 15 to 400 amperes, 250 volts d-c., and 600 volts a-c. This type of breaker has high interrupting capacity because when the breaker opens, the circuit is transferred from main contacts to intermediate contracts and then to arcing horns by the rapid action of a magnetic blowout.

Two independent overcurrent tripping devices are included: a thermal inverse time trip, and an instantaneous magnetic trip which operates instantly on approximately ten times the normal current.

This new switching equipment is constructed with a back-connected, base-mounted air circuit breaker enclosed in a metal box with a hinged cover provided with a breaker position-indicator and an operating handle for opening and closing the breaker. This construction affords dead-front operation of the breaker with freedom from live parts. Barriers of insulating material prevent possible arcing to metal enclosures. Ventilating louvers in the door, aided by the interior construction of the breaker, permit air circulation around the breaker parts, thus assuring a low temperature rise. The contact construction consists of solid main contacts, protected by intermediate contacts of Elkonite (silver and tungsten), arcing horns, and a magnetic blowout.



Caterpillar Diesel tractor equipped for snow removal work

NEW WELDING TORCH ANNOUNCED

The Linde Air Products Company, New York, has announced the addition of a new welding torch to its Purox line.

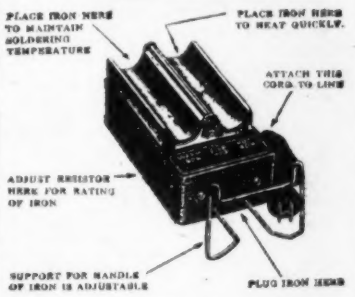
Designed as the Purox No. 28 Welding Torch, this new torch has the same range of usefulness as the Purox No. 20 Torch, but is somewhat different in design. Its utility is such that it will handle heavy-duty work as easily as the average job.

Ten one-piece, 60 degrees gooseneck tips, numbered from 6 to 15, are available for use with this torch.

A NEW FLOODLIGHT

The S. & M. Lamp Company, Los Angeles, is introducing a new Floodlite, known as the series No. 800. This lamp is recommended for use in the garage or similar locations or for lighting the private driveway. The lamps are constructed of oxidized aluminum and are stated to be impervious to weather conditions. The reflector is 9½ inches in diameter. The No. 800 has a porcelain socket with a metal cap, threaded for a half inch conduit. No. 802 has an all porcelain socket.

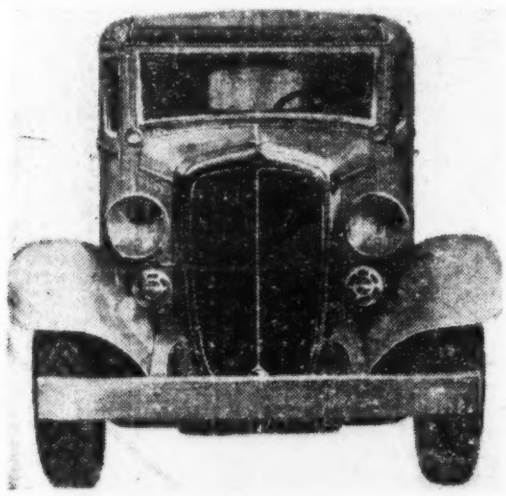
NEW SOLDERING IRON STAND


PLACE IRON HERE TO MAINTAIN SOLDERING TEMPERATURE
PLACE IRON HERE TO HEAT QUICKLY
ATTACH THIS CORD TO LINE
ADJUST RESISTOR HERE FOR RATING OF IRON
SUPPORT FOR HANDLE OF IRON IS ADJUSTABLE
PLUG IRON HERE

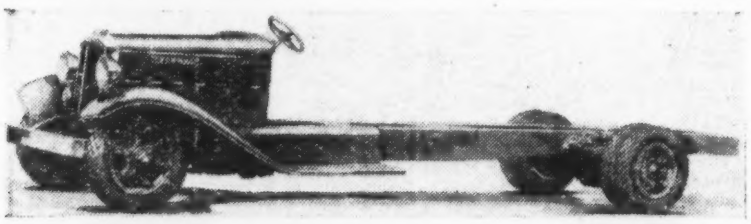
G-M Laboratories, Inc., Chicago, has announced a new type of soldering iron stand that is claimed to effect a saving of 30-40 per cent. in power consumption and overcomes many of the principal soldering troubles.

The most serious difficulties in soldering work result from an overheated, dirty iron, and much defective soldering results from the tip of the iron becoming pitted and corroded from excessive heat. By keeping the iron, when not actually being used, at just the right soldering temperature, the G-M Stand corrects this trouble and the tip of the iron will remain well tinned for weeks, it is stated.

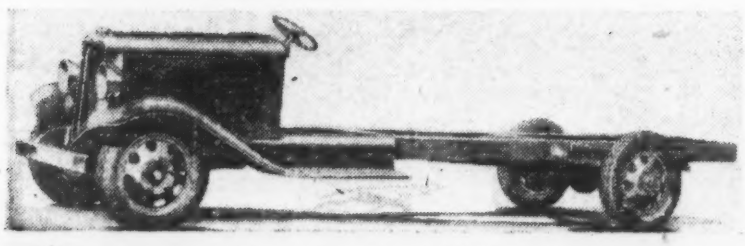
The G-M soldering iron stand has two cradles. When placed in the left-hand cradle the iron receives only sufficient voltage to keep it at the minimum and yet proper soldering temperature for immediate use. When the iron is either in actual use or is placed in the right hand cradle, full line voltage is automatically applied to keep the iron up to temperature.



Head-on view of the new Federal chassis showing the careful attention to details of appearance



New Federal 3½ to 4-Ton Chassis



New 1½-Ton Federal Chassis

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